

**ARMY NATIONAL GUARD
DG 415-2
LOGISTICS FACILITIES
DESIGN GUIDE**



**NATIONAL GUARD BUREAU
INSTALLATIONS DIVISION
111 SOUTH GEORGE MASON DRIVE
ARLINGTON, VA 22204-1382**

FOREWORD

This Logistics Facilities Design Guide (DG 415-2) was published by the National Guard Bureau, Army Installations Division (NGB-ARI). DG 415-2 applies to all projects for new construction (including additions) as well as alterations to and rehabilitation and conversion of existing facilities. It is intended to assist the States, Territories, the District of Columbia and design professionals in gaining an understanding of the functions and the unique environmental considerations to address in the construction documents development. This design guide does not contain criteria but refers readers to sources of criteria in other publications that relate directly to the specific technical design requirements.

This Logistics Facilities Design Guide should be used in conjunction with the General Facilities Information Design Guide (DG 415-5) to develop the final project design.

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CHAPTER 1

GENERAL INFORMATION

1-1 **PURPOSE: PERFORMANCE DESIGN GUIDE**

This Logistics Facilities Design Guide (DG 415-2) sets forth general functional guidance for the design architect-engineer (A-E) to use in developing the design and the construction documents for Army National Guard (ARNG) projects that qualify for support, totally or in part, from Federal funds. This guide is applicable to all construction projects, including new construction, major alterations, rehabilitation and adaptive reuse of existing facilities. All ARNG facilities must be designed and constructed applying the principles and practices of sustainable design and development using U.S. Green Building Council LEED-NC Version 2.2 Green Building Rating System to achieve a “Silver” rating.

DG 415-2 addresses the unique functional design requirements for specific types of buildings. It should be used in conjunction with the General Facilities Information Design Guide (DG 415-5), which contains basic design guidance common to all Army National Guard building types. Together, the two design guides provide the functional performance information necessary to assist in developing the facility design.

To aid the reader in using this design guide, the following are included:

- Appendix A, Unique References, lists reference documents that pertain specifically to this building type; other references cited in this design guide are included in the References in DG 415-5.
- Appendix B, Glossary, defines the acronyms and abbreviations used in this design guide as well as specialized terms that are unique to this design guide.
- Appendix C contains several tables of requirements.
- Appendix D contains the figures that illustrate the explanations in the text.

1-2 **FUNCTIONS AND OPERATIONS OF LOGISTICS FACILITIES**

This design guide pertains to the following types of ARNG logistic facilities.

- United States Property and Fiscal Officer Offices
- Surface Equipment Maintenance Facilities
- Direct Support Logistical Facilities
- Unheated Enclosed Storage and Vehicle Storage

CHAPTER 2

UNITED STATES PROPERTY AND FISCAL OFFICE

2-1 GENERAL INFORMATION

The primary function of the United States Property and Fiscal Officer (USPFO) is to provide logistical management support, which includes property procurement, inventory transfer transactions, and financial management. This chapter outlines design features applicable to the following two USPFO facilities:

- USPFO office facility
- USPFO warehouse facility

The USPFO responsibilities include the following:

- Receive and account for all Federal funds and property in possession of the State Army National Guard.
- Ensure that Federal funds are obligated and expended as required by applicable statutes and regulations.
- Manage the Federal logistics support system for the State Army National Guard.
- After mobilization of a support unit, provide the support necessary for the transition of the mobilized units to active duty status.

2-2 USPFO OFFICE FACILITY

2-2.1 General Information

To maintain maximum future flexibility within any administrative space, the number of individual offices is to be minimized and the open areas are to be maximized. In the open areas, the use of modular systems work stations is encouraged to save floor space and to provide individuals with adequate, efficient space. The modular furniture must be furnished and installed with other than Federal construction funds.

2-2.2 Functional Areas

The following paragraphs describe the functional areas in the USPFO office facility and provide special design considerations for those areas.

2-2.2.1 Automated Data Processing Area

Automated data processing (ADP) areas are used for processing classified defense information that requires protection under the Privacy Act of 1974. All ADP areas of the Army National Guard (ARNG) are mission essential and operate at critical levels. A raised floor is authorized in the ADP equipment room. ADP areas should be designed with a personnel access control system; fire protection system; heating, ventilation, and

air conditioning (HVAC) system with humidity controls; and an uninterruptible power system (UPS).

2-2.2.2 Telecommunications Center

The automated digital network (AUTODIN) telecommunications center should be designed with a personnel access control system, fire protection system, HVAC system with humidity controls, and UPS. The area should be designed to comply with the requirements of AR 380-380 for protection of computer equipment processing critically sensitive level two traffic. Access to the telecommunications center should be separate from that of the ADP room. The space environment should be controlled at 74 °F and 45 percent relative humidity.

2-3 USPFO WAREHOUSE FACILITY

2-3.1 General Information

The USPFO warehouse is used for receiving, storing, and issuing all logistical supplies needed to support the ARNG. To maintain maximum future flexibility within the administrative and supply/warehouse space, the number of partitions segregating functional areas should be minimized.

The functional areas in the USPFO warehouse facility are described below, together with the exterior design elements.

2-3.2 Functional Areas

The following paragraphs provide background information pertaining to the functions and operations within the specific areas of the warehouse facility as well as special design considerations for the functional areas. (See Figure 1 and 2, USPFO Warehouse Facility Functional Relationships, in Appendix D).

2-3.2.1 Functions and Operations

Approved program documents do not provide a detailed breakdown of functional areas because the National Guard Bureau (NGB-ARI) authorizes a lump sum net USPFO warehouse building area. Therefore, the State Military Department will provide the design architect-engineer (A-E) with the individual net floor area, which includes the administrative offices; toilet, shower, and lockers; flammable material storage; vault; clothing issue; summary accounting for low-dollar turnover items (SALTI); bin and bulk storage; mechanical, electrical, and telephone equipment; custodial area; circulation; and break area. To the maximum extent, offices should be joint use, with the number of exclusive-use offices kept to a minimum. In or near the shipping and receiving area, one 10,000-lb built-in floor scale may be provided.

2-3.2.2 Special Design Requirements

The warehouse must have a vertical storage door height of 12 ft plus 2 ft of handling clearance height in the bulk and flammable materials storage areas. The storage height should be 8 ft plus 2 ft of handling clearance in the areas used for the vault, self-service, clothing issue, administrative offices, and bin storage. The flammable materials storage area may not exceed 4 percent of the total net warehousing space and must be designed to meet local codes and regulations relating to the storage of flammable

materials. Double-leaf vault doors are authorized. Warehouse doors shall be designed to facilitate the use of materials-handling equipment.

2-3.3 Exterior Design Elements

2-3.3.1 Flammable Materials Storage

The net floor area of the flammable materials storage can be obtained from the approved program documents. This space may be constructed as a separate prefabricated metal building, or it may be built of concrete masonry units (CMU) or the same material as the main building as long as the design meets all Federal, State, and local codes regulations and ordinances. Provide for fire protection and spill containment in the space in accordance with OSHA and NFPA Classified facilities. Refer to the General Facilities Information Design Guide (DG 415-5), Chapter 5, Common Functional Site Design Guidelines.

2-3.3.2 Mail Room

(Refer To DG 415-5, Chapter 5)

2-3.3.3 Controlled Waste-Handling Facility

(Refer to DG 415-5, Chapter 5)

2-3.3.4 Loading Dock

The warehouse requires a concrete loading dock that is 15 ft wide, approximately 4 ft high, covered by a canopy, and fitted with a minimum of one and a maximum of four mechanical dock levelers and a 10-ft-wide ramp for forklift access. The length of the loading dock is authorized to be the same as the longest side of the warehouse. An enclosure may be provided at one door to extend to the edge of the loading dock. An air seal may be provided to close the gap between the enclosure and the truck body. One or two doors, other than the door with the enclosure, may have an air curtain if operational requirements make this necessary and if the outside heating design temperature is 20 °F or lower. Rubber, neoprene, or wood dock bumper blocks should be included.

2-3.3.5 Service Apron

The warehouse service apron is to be constructed of rigid pavement. The area should be as authorized in the approved program documents. The total square yardage or footage in the program documents was obtained by limiting the apron depth to 60 ft multiplied by the length of the longest side of the building.

CHAPTER 3

SURFACE EQUIPMENT MAINTENANCE FACILITY

3-1 GENERAL INFORMATION

The surface equipment maintenance facility (SEMF) is used for performing varying levels of maintenance, depending on the mission of the particular SEMF shop or site. The overall mission of the SEMF is to maintain surface equipment at the highest possible operational state of readiness to support training, natural disaster relief, or combat operations.

This chapter addresses the following types of SEMFs:

- Field maintenance shop
- Maneuver area training equipment site and unit training equipment site
- Combined support maintenance shop (CSMS) and maneuver area training site (MATES)

The missions of these SEMFs are outlined below, along with design guidance for specific functional areas.

3-2 FIELD MAINTENANCE SHOP

The Field Maintenance Shop (FMS) is used for performing field-level maintenance on automotive, engineering, artillery, communications, electronics, small arms, and other Federal equipment. Personnel at the FMS schedule and perform preventive maintenance, repair equipment requisition, and account for repair parts; inspect military equipment; and keep pertinent records of supported units to ensure that unit maintenance responsibilities are fulfilled. They also conduct maintenance training for various unit personnel on a regular basis. In the office area of the FMS, the use of systems furniture is encouraged to save floor space and provide individuals with adequate and efficient space.

3-3 MANEUVER AREA TRAINING EQUIPMENT SITE WITHOUT SUPPORT AND UNIT TRAINING EQUIPMENT SITE

The maneuver area training equipment site (MATES) and the unit training equipment site (UTES) are used for the following field-level maintenance activities:

- Receiving, storing, maintaining, and issuing equipment (automotive, engineering, artillery, communications, electronics, small arms, and other Federal equipment).
- Scheduling and performing maintenance.
- Requisitioning and accounting for repair parts.

- Inspecting military equipment and pertinent equipment and maintenance records of supported units to ensure that maintenance has been performed.
- Conducting maintenance training programs.

3-4 **COMBINED SUPPORT MAINTENANCE SHOP AND MANEUVER AREA TRAINING EQUIPMENT SITE WITH SUPPORT**

The CSMS and the MATES are used for performing field and sustainment maintenance.

The types of military equipment maintained include wheeled and tracked tactical vehicles; towed vehicles (including trailers and artillery); and engineering, communications, electronics, small arms, and other Federal equipment. The MATES performs field and sustainment maintenance on military equipment that is permanently assigned to the MATES and is not supported by the maintenance performed at the CSMS. Figure 3 illustrates the functional relationships of the components and spaces in a typical CSMS.

3-4.1 **Support Areas**

3-4.1.1 **Cannibalization Areas**

The cannibalization area provides outside storage for surface equipment that is uneconomical to repair but can be utilized as a source for serviceable repair parts. Each cannibalization area should be secured with a fence. Generally, there should be one 20-ft wide vehicle gate and no more than two personnel gates with a maximum of one 4-ft opening. The authorized area for storage may be paved with 8 in. of rigid concrete. The cannibalization area will be illuminated for security.

3-4.1.2 **Covered (Enclosed) Unheated Parts Storage**

3-4.1.2.1 **General Design Considerations**

The parts storage may consist of a pre-engineered metal building with a beam and column design of standard commercially available bay widths and lengths, including a minimum roof slope of $\frac{1}{4}$ in. per foot. Interior columns (at equal bay spacing) should be used when economy of design dictates. A clear-span, rigid-frame design may also be considered when it is determined to be more cost effective in any given instance or is required because of the type of operation performed inside the building.

The general concept is to construct this space as a separate metal building; in some instances, however, the layout of the main building may make it possible to construct the unheated storage space as part of the basic building design at little or no increase in cost over that of a separate metal building. It should be noted that a separate structure is easier to expand.

3-4.1.2.2 **Building Materials**

The exterior finish of the parts storage building (roof and walls) should be a system with a warranted life expectancy of 25 years. The roof may contain some translucent panels, provided that they can be substituted for metal panels without the need for special design and construction. The maximum use of natural lighting is encouraged. If

desired, CMU wall construction, instead of metal wall panels, could be bid as a contractor's option.

3-4.1.2.3 Ventilation

HVAC zoning for office areas, personnel areas, and shop areas should be independent of one another. Ventilation for temperature control should be provided by means of an air handling unit (AHU) or heating/ventilation (H/V) unit with an 85% efficient filter bank, exhaust fans and hoods as required by the space. Reference Table 6 and DG 415-5, Chapter 1, Indoor Air Quality.

3-4.1.2.4 Personnel Doors

Personnel doors should be single 3-ft by 7-ft hollow metal doors fitted with fixed pin hinges suitable to support the weight. Door closers are authorized. If the door hinges are exposed to the exterior, the hinge pins should be designed to prevent removal from the outside. All exposed fasteners should be non-removable and vandal proof. The locking devices should be tumbler-type, key-operated hardened steel padlocks as approved by the Federal government.

3-4.1.2.5 Fire Alarm

A fire alarm and detection system must be included in the facility design in accordance with NFPA 72 and applicable State and local code requirements.

3-4.1.3 Fuel Storage and Dispensing System

Refer to DG 415-5, Chapter 4, for information on fuel storage and dispensing systems.

3-4.1.3.1 Storage Tanks

Refer to DG 415-5, Chapter 6, Common Architecture and Engineering Technical Guidelines, for design guidance regarding above-ground and underground storage tanks.

3-4.1.3.2 Fixed Fuel-Dispensing Facilities

All fixed facilities should be marked for identification of liquid petroleum products in accordance with Military Standard 161f.

3-4.1.3.3 Fueler Vehicle Parking Pads

Safety and security should be considered in locating and arranging spill containment parking pads for fuel tanker vehicles. The location and arrangement should provide for dispersion and a safe escape path to permit rapid removal of vehicles in an emergency.

3-4.1.3.4 Dispensing Nozzles

Dispensing nozzles should be equipped with a locking device. The use of automatic shutoff nozzles is authorized; however, graduated notches, latch open devices, or other wedging devices that permit unattended operations are not authorized.

3-4.1.4 Exterior Lubrication and Inspection Rack

The exterior lubrication and inspection rack should be designed for the maximum anticipated vehicle weights and tread widths. It should include a suitable walkway (platform) with safety railings and steps to grade, allowing the vehicle operator to

dismount safely after positioning the vehicle on the rack. The rack should generally be located within or adjacent to the military vehicle parking area and should allow for easy access without conflicting with traffic flow. Other support features, such as a fuel-dispensing system and a wash platform, when authorized, should be located in close proximity to the lubrication and inspection rack to reduce the cost of common utility runs.

3-4.1.4.1 **Rack Area**

The design of the exterior lubrication and inspection rack area should not include a sump area or drain line. The area under and around the rack should be designed to carry the runoff water and/or petroleum, oils, and lubricants (POL) products away from the rack to an oil-water separator. Standard operating procedures should be established for immediate cleanup of any spilled oil or grease products. If a waste oil tank is used in this area, it should be located near the rack and may have a pipe running from the rack to the tank to drain waste oils directly to the tank. The tank may be installed above ground or underground.

3-4.1.4.2 **Service Island**

The following should be conveniently located for vehicle servicing at the exterior lubrication and inspection rack:

- One compressed air outlet
- One waterproof duplex outlet (ground fault)
- One 110-volt electrical built-in cord/reel system
- One domestic water hose bibb
- One four-reel (engine oil, grease, gear oil, and water/antifreeze) built-in lockable system

3-4.1.4.3 **Unheated Enclosure**

If the approved program documents authorize the lubrication and inspection rack to have an unheated enclosure, it should be as described as follows: The design may consist of a pre-engineered metal building with a clear span and minimum roof slope of $\frac{1}{4}$ in. per foot. The general concept is to construct this space as a separate metal building; in some instances; however, the layout of the main building may make it possible to construct it as part of the main building at little or no increase in cost over that of a separate metal building. It should meet the following requirements:

- A lighting level of 50 FC
- A maximum height of 18 ft over the level part of the rack
- A width of 20 ft
- A length of 80 ft

- Two 3-ft by 7-ft metal personnel doors with a cylinder and/or deadbolt type of lock and corrosion-resistant hinges
- Two 14-ft-high by 16-ft-wide vehicle doors
- Standard door hinge installation
- An 8-in. concrete slab (from wall to wall)

3-4.1.5 **Military Vehicle Loading Ramp**

A multi-level loading ramp may be used to help load and unload military vehicles from vehicle transporters or load and off-load supplies and equipment with a forklift or hand trucks. The overall length of the level area abutting the elevated end of the ramp needs to be 60 ft to accommodate large tractor-trailer rigs. Generally, the multi-level ramp should be located to take advantage, where possible, of existing land contours. The ramp should be close to a paved area to reduce the amount of access paving to the ramp and close to where the vehicles, equipment, or supplies will be stored.

The loading ramp may consist of a built-up area of compacted soil with an 8-in.-thick concrete slab. Either the loading end of the ramp and the two sides should have concrete retaining walls, or the two sides should be sloped and paved with a 4-in.-thick concrete slab. The driving surface should be no more than 12 ft wide, and the level part should be no more than 30 ft long. Bumper blocks of wood or rubber should be used.

3-4.1.6 **Maintenance Bay Access Aprons**

Paved service and access aprons may be provided adjacent to the maintenance workbay doors. All workbay access aprons for all shops should be 60 ft deep by the width of the workbays and constructed of rigid concrete (refer to DG 415-5, Chapter 6, for pavement standards). The free-floating concrete edges should be designed as a thickened condition if the edge of the workbay door is supported on the building foundation system. The slab for an appropriate distance out from the door (generally 8 to 10 ft) should be designed as a structural slab. If an access road is intended to provide direct entry to the workbays, it should run parallel to the outer edge of the apron(s).

3-4.1.7 **Wash Platform**

Vehicle wash platform must be constructed of rigid concrete and maybe open or covered based on an outside design temperature and snow rates (RE: NG PAM 415-12, Chapter 3). Provide for oily water runoff with a Pollution Prevention and Storm Water Management plan (RE: DG 415-5, Chapter 6).

3-4.1.7.1 **Exterior Wash Rack**

The outside wash rack is to be located in close proximity to the maintenance workbays and away from the normal traffic flow. The wash rack may be covered by a roof if required by State or local codes but may not have sides. If the program documents authorize the wash platform to have an unheated enclosure, it should be described as follows: The design may consist of a pre-engineered metal building with a clear span

and minimum roof slope of $\frac{1}{4}$ in. per foot. The general concept is to construct this space as a separate metal building; in some instances; however, the layout of the main building may make it possible to construct it as part of the main building at little or not increase in cost over that of a separate metal building. The requirements for an enclosed wash rack include the following:

- A lighting level of 75 FC
- A maximum inside clear height of 15 ft unless a different height is justified and approved
- A width of 25 ft
- A length of 40 ft
- Two 3-ft by 7-ft metal personnel doors that are treated to inhibit corrosion, have a cylinder and/or deadbolt type of lock, and are hung with corrosion-resistant hinges
- Two 14-ft-high by 16-ft-wide vehicle doors treated to inhibit corrosion
- Standard door hinge installation
- A 6-in. concrete slab for wheeled vehicles
- An 8-in. slab for tracked vehicles

At a minimum, the effluent from the wash platform should pass through a sediment, oil, water separator before being discharged to a detention pond if required by State or local codes prior to discharge or re-circulation to the platform or discharge to a subsurface disposal system, storm drainage system, or open ditch (if allowed by regulations, codes, or ordinances). The effluent is to comply with the National Pollutant Discharge Elimination System (NPDES) and State or local discharge requirements. Therefore, an NPDES discharge permit may be required and, if so, must be obtained prior to discharge of any effluent. If the State or local code requires a detention pond or effluent pretreatment, a reference to the specific code is to be provided together with the preliminary design documents, and the requirements in DG 415-5, Chapter 6, are to be met.

3-4.1.7.2 Optional Inside Washbay

One authorized wash rack may be installed within one of the authorized maintenance workbays rather than outside of the workbay. This workbay should be located adjacent to an exterior wall, and the remaining perimeter of the workbay should be enclosed by a concrete block stub wall. The washbay may be divided by a plastic strip air curtain if desired. It should be noted that both, interior wash platform and an unheated, covered wash platform will be authorized.

3-4.1.8 **Waste Oil Storage Tanks**

Storage of waste oil should be above ground in drums or tanks. If a tank is used, the maximum capacity is 1,000 gallons. The tank should be located in an area of the facility where it can best meet the needs of the users. A standard connection should be provided for pumping out the tank. Refer to DG 415-5, Chapter 6, for above-ground and underground storage tank design guidance.

3-4.1.9 **Flammable Materials Storage Building**

Refer to DG 415-5, Chapter 4, for design guidance.

3-4.1.10 **Firefinder Radar Building**

A separate structure is required for storage of the Firefinder radar system, along with the auxiliary components for each system. A compartment measuring 20 ft by 40 ft is needed to store each radar set. When more than one system is to be stored at a single location, the most practical and economical allocation of space is to align the storage areas side by side or end to end. An overhead door is to be incorporated into the design of each storage bay to facilitate putting units in storage and removing them from storage. This structure is to be climate controlled and can be either a detached building or attached to an existing readiness center or SEMF.

3-4.1.10.1 **Access Paving**

The access paving to each bay may be approximately 20 ft wide by the depth required for access to the bay, but it generally should not exceed 60 ft. The paving may be flexible or rigid concrete depending on the site conditions.

3-4.1.10.2 **Building Materials**

The building for the Firefinder radar system may be a pre-engineered insulated metal building with a light-weight insulated roof system or constructed of other materials at equivalent or less cost.

3-4.1.10.3 **Electrical Requirements**

The electrical power requirements for each type of Firefinder radar are as follows:

Radar Type	kW	Hz
AN/TPQ-36	10	400
AN/TPQ-37	60	400

Adequate commercial electrical power and converter capacity should be provided to exercise all sets at the same time. The 400-Hz frequency converter(s) may be included in the design to be purchased and installed with the Military Construction, Army National Guard (MCARNG) construction funds. The converter should be solid state, which can be installed inside the building.

3-4.2 **Main Facility Building Design**

This structure, including all partitions in shop areas, should be constructed of CMU because of potential wear and abuse. Clearances for the overhead crane and rail system used throughout the workbay area need to be taken into consideration for the

interior clear height. Where fixed boom cranes are provided, clearance for both height and lateral movement shall be factored into the maintenance workbay dimensions.

3-4.2.1 **Interior Finishes, Lighting, and Height Requirements**

Tables in Appendix C (specifically, Table 4, Architectural Interior Finishes; Table 8, Electrical Requirements; and Table 9, Special Equipment and Ceiling Heights) contain the interior finishes, lighting levels, and height requirements for the functional areas of all SEMFs, including the following:

- Field maintenance shop (FMS)
- Unit training equipment site (UTES)
- Combined support maintenance shop (CSMS)
- Maneuver area and training equipment site (MATES)

3-4.2.2 **Installed Equipment**

The user will submit a required installed equipment list to the State CFMO for inclusion in the program documents. Whenever possible, installed equipment should be included as part of the building base bid and not bid as separate items.

3-4.2.3 **Battery Maintenance and Charging Room**

The battery maintenance and charging room is used for the following purposes:

- To install electrolyte in new batteries
- To charge vehicle batteries
- To add electrolyte
- To store new dry batteries, electrolyte, and bicarbonate of soda
- In rare cases, to remove electrolyte from unserviceable batteries, in which case the electrolyte is to be poured into a suitable container, not down the sanitary sewer.

This room should be equipped with the following:

- An eyewash and deluge shower combination without floor drains. The eyewash/shower needs to be located for easy access from any point in the room without obstructions.
- An audible automatic alarm that is activated when the eyewash/shower is operated. The alarm should be located where workers outside the battery room can hear it and respond.
- A louvered door or wall for adequate ventilation.

- A non-explosion-proof, spark-resistant exhaust fan. The National Electric Code does not require explosion-proof lights, motors, or switches for small charging operations that are properly ventilated.
- Charging circuits connected to the exhaust fan, so that the exhaust fan goes on automatically when lights are turned on in the room. Generally, there are two chargers per battery room, but the number of charging circuits may vary with the size of the battery room.
- A means to disconnect power to all electric equipment in the room. The emergency disconnect switch should be located at the exit.
- Optionally, a built-in acid-resistant PVC shelving area that is approximately equal to the battery room net floor area
- Optionally, a built-in acid-resistant workbench, with shelves below it, adjacent to the sink
- A door that is sized to allow forklift entry

3-5 **DESIGN GUIDANCE FOR PROGRAM SPACES**

The following paragraphs provide design considerations for the functional areas in the direct support logistics facilities (see the tables in Appendix C for the proximity requirements; finishes; mechanical, and electrical requirements; and other special requirements for these facilities).

3-5.1 **General Supervisor's Office**

The enclosed office space from which the general supervisor, or shop superintendent performs administrative and managerial functions for the entire maintenance operation should be located near the entrance to the facility and the administrative areas. Wherever feasible, it should be in close proximity to production control and the inspection shop and library area. Data and telephone ports are required.

3-5.2 **Supervisor's Office**

The office is enclosed and adjacent to the area of supervision with responsibility to support the operation supervised. Data and telephone ports are required.

3-5.3 **Production Controller**

Production control provides an operational repository for all records. The production controller's duties are to receive customers into the maintenance facility and to open, assign status to, route, and track work orders by means of automated and manual systems. The production control area should be located in close proximity to the inspection and library area and be accessible to customers.

3-5.4 **Inspection and Library**

The inspection and library provides for quality control functions. The library houses electronic and printed media pertaining to the equipment supported by the facility. It should be located adjacent to the inspection bay accessible to the customer entrance of the shop area and close to production control.

3-5.5 **Automation Clerk**

The person receives customers, processes data, answers phones, prepares correspondence, and files and faxes information. This area should be located near the entrance to the facility and adjacent to the general supervisor's office.

3-5.6 **Common Information Technology Space**

The common information technology (IT) space houses network data-processing computer terminals. It may be consolidated into one location or dispersed throughout the facility to augment allocated individual office space. The IT space(s) should be located in areas suitable to support the administrative/automation activities in the facility.

3-5.7 **Information Technology Support Activities**

The IT support activities space houses servers, routers, concentrators, telecommunications equipment, amplifiers, relays, uninterrupted power supplies, and other related equipment.

3-5.8 **Classroom**

This space provides an area for presentations, instruction, and lectures using oral and multimedia communication. Its location should be remote from high-noise/high-traffic areas with access to natural light from windows or skylights.

3-5.9 **Toilets/Shower**

The toilet areas can be dispersed throughout the facility to minimize loss of production time for employees. The shower facility should be collocated with the locker rooms and near the physical fitness area. Refer to DG 415-5, Chapter 5, Common Functional Planning and Building Design Guidelines, for more information.

3-5.10 **Locker Room(s)**

The allocation of lockers between males and females should be based on minimum code requirements and anticipated building usage. This area should be near the showers and physical fitness area.

3-5.11 **Break Area**

The area should accommodate both employees and visitors, and should be placed in a central location. Refer to DG 415-5, Chapter 5 for more information.

3-5.12 **Physical Fitness Area**

The physical fitness area provides space for employees and authorized personnel to perform physical fitness activities. It should be located in a central area and in close proximity to the locker rooms. Refer to DG 415-5, Chapter 5, for more information.

3-5.13 Tool Room

The tool room is used for receiving, issuing, and storing tools. It should be collocated with the supply room and in close proximity to workbay operations specifically for the automotive, electronics, and the allied trade sections.

3-5.14 Supply Room

This section requisitions, receives, stores, issues, and accounts for repair parts, property, tools, and supplies. The room should be collocated with the tool room and in close proximity to workbay operations specifically for the automotive, electronics, and allied trade shops that consist of the machine, glass repair, canvas repair, and carpentry.

3-5.15 Battery Room

The function of the battery room is to store, service, and charge batteries. It should be located in close proximity to workbay operations.

3-5.16 Communications and Electronic Shop

The communications and electronics shop provides an area to maintain, repair, and/or install communications and electronic equipment. This area should be located near the supply room and the electronics workbay and be accessible to customers.

3-5.17 Instrument Repair Shop

The instrument repair shop provides space to maintain electronic fire control and optical instruments and should be located near the armament shop area.

3-5.18 Small Arms Repair Shop

The function of the small arms repair shop is to maintain, repair, and adjust small fire arms, including machine guns, coax guns, and mortars removed from the combat vehicles. The combat vehicle small arms are usually removed from the vehicles and permanently located at the shop, where they are stored in the CBT vehicle arms vault. (A small arms vault is not authorized at small arms repair shops.) This repair shop is generally located adjacent to the vault(s) and the basic items of issue (BII) functional area.

3-5.19 Small Arms Test Room

The small arms test room is used for test firing small arms. It should be located adjacent to the small arms repair shop. Provide the required safety equipment compatible with an Indoor Firing Range. RE: DG 415-1, Chapter 2. (bullet traps, wall construction and ventilation/exhaust system).

3-5.20 Vault (Small Arms)

The small arms vault provides storage and security for small arms, components of small arms, and other sensitive items. It must be located adjacent to the small arms repair shop but not adjacent to an exterior wall. Refer to vault construction discussed in DG 415-5, Chapter 6.

3-5.21 Vault (CBT Vehicle Arms)

This area provides space for storage and security of weapons removed from combat vehicles. It must be located adjacent to small arms repair shop and BII storage/issue but not adjacent to an exterior wall. Refer to vault construction discussed in DG 415-5, Chapter 6.

3-5.22 Injector Test Room

The functions of the injector test room include diagnosis, rebuilding, and testing of numerous types of fuel injector pumps, fuel injectors, and other fuel system components. The injector test room should be near the fuel and ignition repair shop.

3-5.23 Fuel and Ignition Repair Shop

The fuel and ignition repair shop is used for inspecting, testing, and repairing generators, alternators, starters, distributors, carburetors, clutch assemblies, vehicle personnel heaters, and hydraulic hose assemblies. It should be adjacent to the injector test room.

3-5.24 Basic Items of Issue Storage/Issue

The BII warehouse is used to requisition, receive, store, issue, turn in, and account for basic items of issue. It should be located on an exterior wall or in a separate building and in close proximity to the combat vehicle arms vault.

3-5.25 Machine Shop

The function of the machine shop is to repair, fabricate, rebuild, and modify parts, tools, and components for vehicles and equipment. The machine shop should be centrally located near the welding shop/bay, engine/transmission test cell workbay, body shop, and general-purpose workbays.

3-5.26 Carpenter Shop

The function of the carpenter shop is to repair, fabricate, rebuild, and modify wooden items such as shipping containers, pallets, PLL shelters, simple tables, cabinets, and bookshelves. The carpenter shop should be adjacent to lumber storage.

3-5.27 Lumber Storage Shed

This shed provides indoor storage for plywood and dimensional lumber stock. It should be adjacent to the carpenter shop.

3-5.28 Canvas Shop

The canvas shop provides space to inspect, repair, and fabricate canvas items, including vehicle cargo covers, tents, seat cushions, and storage and carrier bags. This shop should be located in the allied trades' area.

3-5.29 Missile Repair Shop

The missile repair shop accommodates the repair, inspection, and servicing of missile systems. This shop should be located near the communications and electronics shop but can also be located next to small arms repair shop, especially if vault spaces are combined

3-5.30 **Vault (Missile)**

The missile vault provides storage of missile systems and components. Adjacencies are similar to those of the missile repair shop.

3-5.31 **Calibration Room**

The calibration room is used for the following purposes:

- To perform physical and electrical calibrations as well as the administrative support functions associated with calibration.
- To perform production control operations.
- To inspect equipment received from support activities for calibration.

It should be located close to the radiation calibration room and calibration storage, the instrument repair shop, and the communications and electronics shop.

3-5.32 **Calibration Storage**

The function of the calibration storage area is to receive, store, and ship calibration items. It should be located adjacent to the calibration room with access to the outside.

3-5.33 **Glass Repair Room**

The function of the glass repair room is to inspect, repair, and fabricate glass in/for vehicles. This shop should be located in the allied trades' area.

3-5.34 **Radiator Test and Repair Room**

The functions of this room include radiator inspection, testing, and repair. It should be located in the allied trades' area.

3-5.35 **Communication Security Repair Room**

The communication security (COMSEC) repair room is used for maintenance repairs and services on COMSEC equipment. It should be located near the communications and electronic shop.

3-5.36 **Radiation Calibration Room**

The function of the radiation calibration room is to perform calibration on items that have a radiation source. It should be near the calibration room and instrument repair shop, and should provide access to the outside.

3-5.37 **Bulk POL Storage for Lubricating Systems**

This area is used to store 55 gallon drums of POL products such as grease and oils that will transport these products to the general purpose and special purpose workbays.

3-5.38 **Bulk POL Storage**

This area is used to store bulk POL products typically in 55 gallon drums. It should be included in the main facility or built as a separate facility. Refer to DG 415-5, Chapter 4.

3-5.39 Controlled Waste Handling

Refer to DG 415-5, Chapter 4.

3-5.40 Bulky Equipment Storage

This area is designated for storage of bulky maintenance equipment to include tire changers, floor jacks, equipment stands, and welding equipment.

3-5.41 Flammable Materials Storage

Refer to DG 415-5, Chapter 4.

3-5.42 Enclosed Unheated Storage

This area is used to store major components of end items; items waiting repair/direct exchange, and Class IX parts that are susceptible to damage from the outdoor environment. It may be included in the main facility or built as a separate facility.

3-5.43 Workbay Dimensions

All the workbays should be not less than 32 ft wide by 64 ft long to accommodate the larger vehicles, tractor trailer, and HEMTTs. These dimensions allow for safe movement completely around the vehicles and for simultaneous servicing of the tractor and trailer without disconnecting them.

3-5.44 General Purpose Workbays

The function of the general purpose workbays is to perform field and sustainment maintenance, and should be provided with accommodation for one or more 15 ton bridge cranes with a 17 ft hook height. This workbay should be near the tool and supply rooms. Provide trench drain, oily water separator.

3-5.45 Warm-up Bay

The function of this bay is to warm up equipment prior to operation or maintenance and should accommodate a 15 ton bridge crane with a 17 ft hook height. It should be adjacent to the general purpose workbays and near the tool and supply rooms.

3-5.46 Welding Shop

The welding shop provides an area to repair, rebuild, modify, or fabricate operational and training equipment by welding, brazing, cutting, and grinding automotive equipment frames and other equipment bodies or frames. This space should be adjacent to other general purpose workbays and when possible near to the other allied trades shops. It should provide for a 7-1/2 ton bridge crane with a 17 ft hook height.

3-5.47 Wash Bay

The wash bay provides space to clean vehicles, other military equipment, assemblies, components, and parts by means of steam, low-, and/or high-pressure hot water. The wash bay should be located near the general purpose workbays.

3-5.48 Paint Stripping Bay

The paint stripping bay is used for stripping paint and rust from equipment (large or small). This bay requires adequate ventilation for the high-pressure media (water, plastic, and steel) used in the process. It should be located adjacent to the paint

preparation bay and paint booth as well as the mechanical room housing all equipment that supports the stripping process.

3-5.49 Paint Preparation Bay

The function of the paint preparation bay is to prepare equipment for painting. This bay should be adjacent to both the paint stripping bay and the paint booth.

3-5.50 Paint Booth

The paint booth is used for painting equipment (large or small) and needs to be equipped with a ventilation system appropriate for use with a high-volume, low-pressure, or traditional spray system. It should be located near the flammable storage area and adjacent to the paint stripping and paint preparation bays.

3-5.51 Lubrication Bay

The lubrication bay provides an area to change oil and to inspect, lubricate, repair, and/or service equipment and cooling systems of equipment. This bay also contains space to store POL products; and accumulate waste POL, solvents, and coolants. It should be located adjacent to the general purpose workbays and accommodate a 15 ton bridge crane with a 17 ft hook height.

3-5.52 Engine/Transmission Test Cell

The engine/transmission test cell accommodates a test room used for inspecting, testing, and repairing transmissions and engines used in military equipment. Testing is typically accomplished using a dynamometer and control panel to monitor equipment operation. This test cell should be adjacent to Machine Shop and situated so as to minimize noise interference with other work areas. This area is serviced by a 7-1/2 ton overhead lifting device.

3-5.53 Electronics Bay

This bay is utilized by communication/electronic shop personnel to install installation kits troubleshoot and/or repair communication equipment on end items. It should be located near the communication/electronic shop.

3-5.54 Body Shop

This area is used to repair body and frame damage to military vehicles. It should be located near paint preparation, welding, and paint stripping bays.

3-5.55 Facility Maintenance and Custodial Area

Refer to DG 415-5, Chapter 5.

3-5.56 Mechanical, Electrical, and Telecommunications Room(s)

Refer to DG 415-5, Chapter 5.

CHAPTER 4

DIRECT SUPPORT LOGISTICS FACILITY

4-1 GENERAL INFORMATION

The type of facility to be designed is based on whether the State Army National Guard is authorized an Echelon above Brigade (EAB), a separate brigade (not a brigade under an EAB), or less than a brigade-size military force, as follows:

- If the State is authorized a EAB, the types of facilities authorized for the State are a combat services automation management office (CSSAMO), a EAB Class IX stock control, a EAB Class IX warehouse main, and an EAB Class IX warehouse forward for each brigade under the EAB.
- If the State is authorized a separate brigade, the types of facilities may include a brigade CSSAMO, a brigade Class IX stock control, and a brigade Class IX warehouse.
- If the State is authorized other than a EAB or a separate brigade, the types of facilities are tailored to the specific type of units supported based on space criteria for brigade CSSAMO or Class IX operation. The functions performed within an EAB, separate brigade, or non-EAB direct support unit general support unit (DSU/GSU) Class IX facility are the same. Therefore, the following paragraphs provide the necessary design guidance for designing any one of the facilities.

Direct support logistics facilities house the division materiel management centers, brigade materiel management centers, and non-divisional direct support unit operations within the ARNG. Refer to Paragraph 4-2, Types of Direct Support Logistics Facilities, for the facility types based on authorization of a division, a separate brigade, or other than a division or a separate brigade.

The mission of the direct support logistics facilities is materiel management using tactical automated equipment authorized in the Modified Table of Organization and Equipment (MTOE). The major functions of these facilities are administrative, ADP, and warehousing operations. Required activities are ordering, stocking, accounting for, issuing, and receiving serviceable and unserviceable ground surface equipment, parts, and supplies necessary to meet the operational needs of supported units.

The space allowance for the various PC based systems is included in the program documents. In addition to the guidance provided herein, the design A-E should consult the approved program documents to determine the type of direct support logistics facility, scope, and amount of exterior supporting items to include in the construction documents. The physical and environmental security at these facilities should comply with AR 380-19.

4-2 TYPES OF DIRECT SUPPORT LOGISTICS FACILITIES

4-2.1 General Information

The type of direct support logistics facility to be designed is based on whether the State Army National Guard is authorized a division, a separate brigade (that is, not a brigade under a division), or less than a brigade-size military force, as follows:

- If the State is authorized a division, the types of facilities authorized for the State are a combat services automation management office (CSSAMO), a division Class IX stock control, a division Class IX warehouse main, and a division Class IX warehouse for each brigade under the division.
- If the State is authorized a separate brigade, the types of facilities may include a brigade CSSAMO, a brigade Class IX stock control, and a brigade Class IX warehouse.
- If the State is authorized other than a division or a separate brigade, the types of facilities are tailored to the specific type of units supported based on space criteria for a brigade CSSAMO or Class IX operation.

The functions performed within a division, separate brigade, or non-divisional direct support unit/general support unit (DSU/GSU) Class IX facility are the same. Therefore, the following paragraphs provide the necessary design guidance for designing any one of the facility types.

4-2.2 Design Considerations

This administrative storage area provides capacity for storing operating supplies, disk packs, data tapes, and historical records and files.

4-2.2.1 Combat Services Support Automotive Management Office Administrative Storage

The CSSAMO provides storage capability for operating supplies, disk pack, data tapes, and historical records and files.

4-2.2.2 Class IX Stock Control Area

This functional area is manned according to the unit MTOE. It is an administrative office that maintains the Class IX available balance file, processes requests for issue and turn-in, reviews and recommends changes to storage lists, and reconciles the status of requisitions with supported units. Supply clerks operate PCs in performing their duties. This area should be climate controlled and have enough telephone and data lines to support the mission. There must be a customer counter and space for a photo copier machine.

4-2.2.3 Class IX Stock Control Storage

This functional area provides storage capacity for the numerous user reports generated by the automated system.

4-2.2.4 Class IX Warehouse

The direct support logistics facility operates storage facilities for the division Class IX supply support activity.

4-2.2.5 Logistics Automation System Support Office

The CSSAMO has been issued the TACCS hardware systems that operate the DS-4 DT and SARSS software. This functional area, consisting of up to three computer operators, provided ADP management, operates ADP equipment to produce user reports, and maintains all ADP software and run instructions. The Brigade Property Book Section, also in this functional area, consists of 7 to 28 personnel, including the property book officer, supply technicians, supply clerks, and clerk typist. This section maintains the consolidated brigade property book and manages the hand receipt accounts for brigade units.

4-2.2.6 System Repair

This functional area, consisting of one or two maintainers, performs organizational and direct support maintenance on the automated equipment.

4-2.2.7 Division Class IX Warehouse

This warehouse supports the division Class IX supply activities.

4-2.2.8 Brigade Logistics Automation System Support Office

This support office consists of up to three computer operators, who provide ADP management, operate ADP equipment to produce user reports, and maintain all ADP software and run instructions. This office also includes the Brigade Property Book Section, which consists of 7 to 28 personnel, including the property book officer, supply technicians, supply clerks, and clerk typist. The Brigade Property Book Section personnel maintain the consolidated brigade property book and manage the hand receipt accounts for brigade units.

4-2.2.9 Brigade System Repair

This repair area consists of one or two maintainers, who perform organizational and direct support maintenance on the automated equipment.

4-2.2.10 Brigade Class IX Stock Control Administrative Office

This administrative office consists of up to seven personnel, includes the technical supply officer, supply clerks, and warehouse workers. These personnel maintain the brigade's Class IX available balance file, process requests for issue and turn-in, review and recommend changes to stockage lists, reconcile the status of requisitions with supported units, and operate the TACCS hardware in performing their duties.

4-2.2.11 Brigade Class IX Stock Control Storage

This storage area provides capacity for storing the numerous user reports generated by the automated system.

4-2.2.12 Brigade Class IX Warehouse

This warehouse supports the brigade Class IX supply activities.

4-3 **VAN AND TRAILER SHELTERS**

The parts vans and trailers and data vans discussed in the following paragraphs are moved only for annual training. They may be roof-covered and enclosed with an FE-6 fence or totally enclosed with walls, as described in the program documents.

4-4 **PARTS VANS AND TRAILERS**

The parts vans and trailers are used for storing military vehicle and equipment repair parts and supplies. These vans and trailers are government furnished and installed in accordance with the number provided in the approved program documents. They are generally of three types:

- The totally enclosed van type (approximately 8 ft wide by 24 ft long) with expandable sides that protrude approximately 3 ft on each side, making the expandable width approximately 14 ft
- The van type (approximately 8 ft wide by 24 ft long) without expandable sides
- The flat bed or stake and platform trailer type (approximately 8 ft wide by 24 ft to 28 ft long)

The vans and trailers are generally to be located outside of, close to, and adjacent to an inside storage area, and backed up to an enclosed ground- or dock-level unloading platform that is a maximum of 15 ft wide. Mechanical dock levelers are not normally required for these parts vans and trailers because these vehicles are not continually moving in and out of the dock area like the delivery trucks at the shipping and receiving area of the inside storage area. The van shelters may be roof-covered and enclosed with a FE-6 fence or by walls, as stated in the approved program documents. The following paragraphs apply to the parts vans and trailers:

4-5 **PARTS AND DATA VAN TRAILERS AND SHELTERS**

The data vans house computers for data processing operations. These vans are unit equipment. They are generally to be located adjacent to the Class IX stock control administrative area, backed up to an enclosed 4-ft-wide ground or dock-level circulation and transition area between the data vans and the Class IX stock control administrative area. The vans and van shelters may be roof-covered and enclosed with a FE-6 fence or enclosed by walls as stated in the approved program documents.

4-5.1 **Roofing System**

The roof may be constructed of plywood with fiberglass shingles, standard-gauge cold-formed steel sheets, or aluminum. The roofing must provide a life expectancy of 20 years with a related warranty. The roof structural support system may be open-web steel joist or steel or wood purlins or joists supported on steel or wood beams. The roof structural system may be supported with wooden or steel columns. Rain water should discharge toward the perimeter of the roof. Gutters and downspouts discharging onto splash blocks located at grade may be provided.

4-5.2 **Floor/Parking Slab**

The entire area under the roof may be a 6-in.-thick concrete slab. A concrete apron 4 ft deep and slightly wider than the doors may be provided outside each exterior door opening.

4-5.3 **Fence**

A 6-ft-high FE-6 fence without top rails and with a 1-ft-high, 45 degree, three-strand barbed wire anti-climber outrigger should be installed on the exposed sides at the outer edges of the roof.

4-5.4 **Electrical Requirements**

Electrical power should be provided by 220-volt, 40-amp, single-phase, 60-Hz special adapter to connect to the appropriate parts vans. Isolated grounding outlets and surge protection for the data vans should be provided as required. The illumination lighting level of the 4-ft-wide circulation and transition area under the shelter covering the vans should be designed at a maximum of 10 FC.

4-6 **UNHEATED WALLED ENCLOSURE FOR VANS**

4-6.1 **Walls**

Wall panels may be standard zinc-coated, cold-formed steel sheets. The exterior finish should be a system that will provide a warranted life expectancy of at least 20 years. The wall panels may also be aluminum with at least a 20-year warranty. If desired, CMU, wood with various siding options or other types of wall construction may be used if the cost is equal to or less than that of the metal walls. Paint finish on exterior CMU surfaces would be authorized, but brick veneer would not.

4-6.2 **Columns**

Columns may be wood or steel, depending on the type of building selected. The design may consist of a beam and column grid with standard bay widths and lengths. Interior columns at equal bay spacings may be used when economy of design dictates. A clear-span, rigid-frame design may also be considered when determined to be more cost effective in any given instance.

4-6.3 **Ventilation**

Ventilation may be provided by means of a series of fixed gravity roof ventilators or continuous rigid-type fixed ventilation vent in conjunction with a personnel door and/or wall louvers for makeup air.

4-6.4 **Personnel Doors**

Personnel doors should generally be single 3-ft by 7-ft hollow metal doors and frames. Door closers are authorized. If the door hinges are exposed to the exterior, the hinge pins should be designed to prevent easy removal. All exposed fasteners should be non-removable and vandal proof.

4-6.5 **Foundation Walls**

Foundation walls, where required, may consist of reinforced concrete grade beams or CMU with grouted core on spread footings or the concrete floor slabs turned down at

the perimeter edges of the building (poured independently of the column foundation support). The maximum depth should be 18 in. measured from the top of the floor slab. The load-bearing columns may be supported on reinforced concrete piers on concrete footings established at frost depth or 2 ft below grade, whichever is greater.

4-7 **LOADING DOCK**

In addition to the docks authorized for the parts vans and trailers and data vans, a loading dock should be provided in the shipping and receiving area of the Class IX operation. Design guidance follows:

- The dock length should be sufficient to accommodate a minimum of three trucks simultaneously loading or off-loading supplies. The dock should be approximately 4 ft high and have a depth of 15 ft to provide the required space for forklift operations.
- The dock should be covered with a roof.
- Each of the three truck docking spaces may be equipped with a mechanical self-leveling dock leveler.
- One of the truck loading and off-loading dock spaces may have an enclosure equipped with an air seal to close the gap between the enclosure and truck body. If required for operations, a heated air curtain may be provided at one or two doors (but not at the door with the enclosure) if the outside heating design temperature is 15 °F or cooler.
- Rubber, neoprene, or wood dock bumper blocks should be included.
- Stairs to the dock should be provided as required.
- The dock should have a forklift access ramp no wider than 10 ft.
- The lighting illumination level on the dock may be 30 FC or whatever the local code requires.

4-7.1 **Covered Storage**

A roof cover of a size indicated in the approved program documents should be provided. It should have a clear height of approximately 14 ft measured at the one-third point of the underside of the lowest sloping roof structural support member. The covered area may be enclosed (but unheated) when indicated in the program documents. The area under the roof should be rigid concrete.

4-7.2 **Access and Maneuver Area**

The area directly in front of the covered Class IX parts van and trailers and data during IDT and ADT training should be rigid pavement to provide an access and maneuver area with a depth of no more than 40 ft. The access and maneuver area out from the shipping and receiving dock should be limited to a depth of 60 ft and should be rigid pavement. The access roads should be constructed as stated in DG 415-5, Chapter 6.

CHAPTER 5CHAPTER 5

**UNIQUE ARCHITECTURAL AND ENGINEERING
TECHNICAL REQUIREMENTS**

(To Be Determined and Developed As Required)

CHAPTER 6

UNIQUE SUBMISSION REQUIREMENTS

(To Be Determined and Developed As Required)

CHAPTER 7

UNIQUE DESIGN REVIEW DIRECTIVE REQUIREMENTS

(To Be Determined and Developed As Required)

APPENDIX A

UNIQUE REFERENCES

The following lists criteria in the form of regulations and industry standards that are to be used to design ARNG logistics facilities and are not included in the References in DG 415-5. The design A-E should use the current applicable edition of all references.

GOVERNMENT PUBLICATIONS:

1. Department of the Army
 - AR 380-380, Automation Security
 - AR 420- 49, Utility Services
 - AR 710-2, Inventory Management Supply Policy Below the Wholesale Level.
 - Military Standard 161f.
- 2.
3. Department of Defense
 - DOD MIL-HDBK-1022A, Petroleum Fuel Facilities.

APPENDIX B

GLOSSARY

B-1 ACRONYMS AND ABBREVIATIONS

ADP	automated data processing
A-E	architect-engineer
amp	Ampere
AR	Army Regulation
ARNG	Army National Guard
AUTODIN	automated digital network
BII	basic items of issue
CBT	Combat
CFMO	construction and facilities management officer
CMU	concrete masonry unit
COMSEC	communication security
CSMS	combined support maintenance shop
CSSAMO	combat services automation management office
DG	design guide
DOD	U.S. Department of Defense
DODM	Department of Defense Manual
DSU/GSU	direct support unit/general support unit
DT-4	Direct Support Standard Supply System
F	Fahrenheit
FC	foot-candle(s)
FMS	field maintenance shop

FMSS	field maintenance subsystem
ft	foot/feet
HVAC	heating, ventilation, and air conditioning
Hz	hertz
in.	inch(es)
kW	kilowatt(s)
lb	pound(s)
MATES	mobilization and training equipment site
MCARNG	Military Construction, Army National Guard
MIL-HDBK	Military Handbook
MTOE	Modified Table of Organization and Equipment
NGB-ARI	National Guard Bureau, Installations Division
NPDES	National Pollutant Discharge Elimination System
POL	petroleum, oils, and lubricants
PVC	polyvinyl chloride
SALTI	summary accounting for low-dollar turnover items
SARSS	Standard Army Retail Supply System
SEMF	Surface Equipment Maintenance Facility
TACCS	Tactical Army Combat Service Support Computer System
UPS	uninterruptible power system
U.S.C.	United States Code
USPFO	United States Property and Fiscal Office
UTES	unit training equipment site

B-2 UNIQUE SPECIALIZED TERMS

Class IX	<i>Repair parts storage vans</i>
Direct Support Logistics Facility	An ARNG facility that houses the Division Materiel Management Centers, Brigade Materiel Management Centers, or non-divisional Direct Support Unit operations within the ARNG and is used for materiel management.
Surface Equipment Maintenance Facility (SEMF)	An ARNG facility that is used for performing varying levels of maintenance, depending on the mission of the particular shop. The overall mission of a SEMF is to maintain surface equipment at the highest possible operational readiness rate to support training, natural disaster relief, or combat operations.
United States Property and Fiscal Officer (USPFO)	An ARNG facility that provides logistical management support, which includes property procurement, inventory transfer transactions, and financial management.

APPENDIX C

TABLES

- Table 1. Proximity Requirements for Direct Support Logistics Facility Office and Personnel Areas
- Table 2. Proximity Requirements for Direct Support Logistics Facility Work Areas
- Table 3. Proximity Requirements for Direct Support Logistics Facility Work Areas and Workbays
- Table 4. Architectural Interior Finishes
- Table 5. Doors, Hardware, Storage, and Shelving
- Table 6. Mechanical Requirements – Part 1, HVAC
- Table 7. Mechanical Requirements – Part 2, Plumbing
- Table 8. Electrical Requirements
- Table 9. Special Equipment and Ceiling Heights

**Table 1. Proximity Requirements for Direct Support Logistics Office
and Personnel Areas**

	General Supervisor	Supervisor	Production Controller	Inspection & Library	Automation Clerk	Common IT Space	IT Support Activities	Classroom	Toilets / Showers	Locker Room	Break Area	Physical Fitness	Workbay Areas
General Supervisor		1	2	2	2	N	N	N	N	N	3	3	2
Supervisor	1		1	1	2	N	N	N	N	N	3	3	2
Production Controller	2	2		1	2	N	N	N	N	N	3	3	2
Inspection & Library	2	2	1		2	N	N	N	N	N	3	3	2
Automation Clerk	1	1	2	2		N	N	N	N	N	3	3	3
Common IT Space	3	3	2	2	1		1	2	3	3	3	3	3
IT Support Activities	3	3	2	2	1	1		2	3	3	3	3	3
Classroom	2	2	2	2	2	2	2		3	3	3	3	3
Toilets / Showers	3	3	3	3	3	3	3	2		1	2	1	2
Locker Room	3	3	3	3	3	3	3	3	1		2	1	2
Break Area	3	3	3	3	3	3	3	2	2	2		2	2
Physical Fitness Area	3	3	3	3	3	3	3	3	1	1	2		2
Workbay Areas	3	3	2	2	3	3	3	3	2	2	2	2	

Functional Relationship Requirements **1** Immediate **2** Close **3** Isolated **N** Neutral

All designated areas are from NG PAM 415-12, Table 3-4 and Table 3-5.

Table 2. Proximity Requirements for Direct Support Logistics Work Areas

	Tool Room	Supply Room	Battery Room	Comm. / Electronic Shop	Instrument Repair Shop	Small Arms Repair Shop	Small Arms Test Room	Vault (Small Arms)	Vault (CBT Vehicle Arms)	Injector Test Room	Fuel & Ignition Repair Shop	BII Storage / Issue	Machine Shop	Carpenter Shop	Lumber Storage Shed	Canvas Shop	Missile Repair Shop	Vault (Missile)	Calibration Room	Calibration Storage	Glass Repair Room	Radiator Test & Repair	COMSEC Repair	Radiation Calibration	Bulk POL Storage (Lube)	Bulk POL Storage	Controlled Waste Handling	Bulky Equip. Storage	Flammable Materials Stor.	Enclosed Unheated Stor.
Tool Room		1	2	2	2	2	N	N	N	2	2	N	2	2	N	2	2	N	2	N	2	2	2	2	N	N	N	N	N	N
Supply Room	1		2	2	2	2	N	N	N	2	2	N	2	2	N	2	N	N	N	N	2	2	N	N	N	N	N	2	N	N
Battery Room	2	2		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Comm. / Electronic Shop	2	1	N		2	2	2	2	2	N	N	N	3	3	N	3	3	2	2	N	3	3	1	2	N	N	3	N	3	3
Instrument Repair Shop	2	2	N	1		1	2	2	2	3	3	N	3	3	N	3	1	2	2	N	3	3	1	2	N	N	3	N	3	3
Small Arms Repair Shop	2	2	N	2	1		1	1	2	3	3	N	3	3	3	3	2	N	2	N	3	3	2	N	N	N	3	3	3	3
Small Arms Test Room	2	N	N	2	1	1		1	2	3	3	N	3	3	3	3	2	N	2	N	3	3	2	N	N	N	3	3	3	3
Vault (Small Arms)	N	N	N	2	1	1	2		1	3	3	N	3	3	3	3	2	1	2	N	3	3	2	N	N	N	3	3	3	3
Vault (CBT Vehicle Arms)	N	N	N	2	2	1	2	1		3	3	1	3	3	3	3	2	1	2	N	3	3	2	N	N	N	3	3	3	3
Injector Test Room	N	N	N	3	3	3	3	N	N		1	N	2	2	N	2	3	N	3	N	2	2	3	3	N	N	N	N	2	N
Fuel & Ignition Repair Shop	N	N	N	3	3	3	3	N	N	1		N	2	2	N	2	3	N	3	N	2	2	3	3	N	N	N	N	2	N
BII Storage / Issue	N	N	N	3	3	2	N	N	1	N	3		3	3	3	3	3	3	3	3	3	3	N	3	3	3	3	N	3	N
Machine Shop	N	N	N	3	3	3	3	N	N	2	2	N		2	N	2	3	N	3	N	2	2	2	3	N	N	N	N	2	N
Carpenter Shop	N	N	N	3	3	3	3	N	N	2	2	N	2		1	2	3	N	3	N	2	2	3	3	N	N	N	N	N	N
Lumber Storage Shed	N	N	N	3	3	3	3	N	N	N	N	N	N	1		2	3	N	3	N	N	N	3	3	N	N	N	N	3	N
Canvas Shop	N	N	N	3	3	3	3	N	N	N	N	N	3	1	2		3	N	3	N	2	N	3	3	3	3	3	N	3	N
Missile Repair Shop	N	N	N	1	2	2	N	N	1	3	3	N	3	3	3	3		1	2	N	3	3	2	2	3	3	3	N	3	3
Vault (Missile)	N	N	N	2	2	2	N	1	1	3	3	N	3	3	3	3	1		2	N	3	3	2	2	3	3	3	N	3	3
Calibration Room	2	2	N	1	1	2	N	N	N	3	3	N	3	3	3	3	2	N		1	3	3	2	1	3	3	3	3	3	3
Calibration Storage	N	N	N	2	2	2	N	N	N	3	3	N	3	3	3	3	2	N	1		3	3	2	1	3	3	3	3	3	N
Glass Repair Room	N	N	N	3	3	3	N	N	N	3	3	N	2	2	N	2	3	N	3	N		2	N	3	3	3	3	N	3	3
Radiator Test & Repair	N	N	3	3	3	3	N	N	N	2	2	N	2	2	N	3	3	N	3	N	2		3	3	3	3	3	N	N	3
COMSEC Repair	2	2	N	1	2	2	N	N	N	3	3	N	3	3	3	3	2	N	2	N	3	3		2	3	3	3	3	3	3
Radiation Calibration	2	2	N	2	1	2	N	N	N	3	3	N	3	3	3	3	2	N	1	N	3	3	2		3	3	3	3	3	3
Bulk POL Storage (Lube)	3	3	3	3	3	3	3	3	3	2	2	N	3	3	3	3	3	3	3	3	3	3	3	3		1	1	2	2	N
Bulk POL Storage	3	3	3	3	3	3	3	3	3	2	2	N	3	3	3	3	3	3	3	3	3	3	3	3	1		1	2	2	N
Controlled Waste Handling	3	3	N	3	3	3	3	3	3	2	2	N	2	N	N	N	3	3	3	3	N	2	3	3	1	1		N	1	N
Bulky Equip. Storage	2	2	3	3	3		N	N	N	3	3	N	3	3	N	N	3	N	3	N	N	3	3	3	3	3	3		3	N
Flammable Materials Stor.	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	1	3		3
Enclosed Unheated Stor.	N	N	N	3	3	3	3	3	3	3	3	N	3	3	N	3	3	3	3	3	3	3	3	3	3	3	3	N	3	

Functional Relationship Requirements

1 Immediate

2 Close

3 Isolated

N Neutral

All designated areas are from NG PAM 415-12, Table 3-4.

Table 3. Proximity Requirements for Direct Support Logistics Areas and Workbays

	General Purpose Workbay	Warm-Up Bay	Welding Shop	Wash Bay	Paint Stripping Bay	Paint Preparation Bay	Paint Booth	Lubrication Bay	Engine / Transmission Test Cell	Electronics Bay	Body Bay
Tool Room	1	1	N	N	3	3	3	3	2	2	3
Supply Room	1	2	N	N	3	3	3	2	2	2	2
Battery Room	N	2	3	3	3	3	3	3	2	2	3
Comm. / Electronic Shop	3	3	3	3	3	3	3	3	3	1	3
Instrument Repair Shop	2	3	3	3	3	3	3	3	3	2	3
Small Arms Repair Shop	2	N	3	3	3	3	3	3	3	2	3
Small Arms Test Room	N	N	N	N	N	N	N	N	N	N	N
Vault (Small Arms)	2	N	3	3	3	3	3	3	3	3	3
Vault (CBT Vehicle Arms)	2	N	3	3	3	3	3	3	3	3	3
Injector Test Room	2	3	2	3	3	3	3	2	2	3	2
Fuel & Ignition Repair Shop	2	3	3	3	3	3	3	2	2	3	2
BII Storage / Issue	3	3	3	3	3	3	3	3	3	3	3
Machine Shop	2	N	1	3	N	N	N	N	1	N	1
Carpenter Shop	2	3	2	3	3	3	3	2	2	2	2
Lumber Storage Shed	3	3	3	3	3	3	3	3	3	3	N
Canvas Shop	2	3	2	3	2	2	2	3	3	2	2
Missile Repair Shop	3	3	3	3	3	3	3	3	3	2	3
Vault (Missile)	3	3	3	3	3	3	3	3	3	2	3
Calibration Room	2	2	3	3	3	3	3	3	3	2	3
Calibration Storage	2	2	3	3	3	3	3	3	3	2	3
Glass Repair Room	2	3	2	3	3	3	3	3	3	2	2
Radiator Test & Repair	2	3	2	2	3	3	3	2	2	3	2
COMSEC Repair	2	2	3	3	3	3	3	3	3	3	3
Radiation Calibration	3	2	3	3	3	3	3	3	3	2	3
Bulk POL Storage (Lube)	2	3	3	3	3	3	3	1	2	3	3
Bulk POL Storage	1	3	3	3	3	3	3	1	2	3	3
Controlled Waste Handling	2	3	3	3	2	2	2	2	3	3	2
Bulky Equip. Storage	3	3	N	3	3	3	3	3	3	3	3
Flammable Materials Stor.	2	2	N	3	2	2	2	2	3	3	2
Enclosed Unheated Stor.	N	N	N	3	3	3	3	3	3	3	3

Functional Relationship Requirements

1 Immediate

2 Close

3 Isolated

N Neutral

All designated areas are from NG PAM 415-12, Table 3-4 and Table 3-5.

Table 4. Architectural Interior Finishes

	FUNCTIONAL AREA	FLOOR	BASE	WAINSCOT	WALLS	CEILING*
Office Areas						
1	General Supervisor	CPT	RB	Epoxy	GWB/P	ACST/ GWB/P
2	Supervisor	CPT	RB	Epoxy	GWB/P	ACST/ GWB/P
3	Production Controller	VCT	RB	Epoxy	GWB/P	ACST/ GWB/P
4	Inspection and Library	VCT	RB	Epoxy	GWB/P	ACST/ GWB/P
5	Automation Clerk	CPT	RB	Epoxy	GWB/P	ACST/ GWB/P
6	Common IT Space	CPT	RB	Epoxy	GWB/P	ACST/ GWB/P
7	IT Support Activities	CPT	RB	Epoxy	GWB/P	ACST/ GWB/P
8	Classroom	VCT	RB	Epoxy	GWB/P	ACST/ GWB/P
Personnel Areas						
1	Toilet/Shower	CT	CT	CT	GWB/P (Note 4)	GWB/P
2	Locker Room	VCT	RB	Epoxy	GWB/P	GWB/P
3	Break Area	VCT	RB	Epoxy	GWB/P	GWB/P
4	Physical Fitness Area	(Note 1)	CPT/RB (Note 8)	Epoxy	GWB/P	ACST
Work Areas						
1	Toilet Room	CT	CT	CT	CMU	EXP/P
2	Supply Room	CONC/H	-	N/A	CMU	EXP/P
3	Battery Room	CONC/H (Note 2)	-	N/A	CMU/P	EXP/P
4	Comm. & Electronic Shop	RT	RB	Epoxy	CMU/P (Note 5)	EXP/P (Note 5)
5	Instrument Repair Shop	RT	RB	Epoxy	GWB/P	GWB/P
6	Small Arms Repair Shop	CONC/H	-	N/A	CMU/P	EXP/P
7	Small Arms Test Room	CONC/H	-	N/A	CMU/P	EXP/Epoxy
8	Vault (Small Arms)	CONC/H	-	N/A	EXP/P	EXP/P
9	Vault (CBT Vehicle Arms)	CONC/H	-	N/A	EXP/P	EXP/P
10	Injection Test Room	CONC/H	-	Epoxy	CMU (Note 5)	EXP/P (Note 5)

*Ceiling heights are indicated in Table 9.

Table 4. Architectural Interior Finishes (Continued)

	FUNCTIONAL AREA	FLOOR	BASE	WAINSCOT	WALLS	CEILING*
11	Fuel and Ignition Repair Shop	CONC/H	-	Epoxy	CMU (Note 5)	EXP/P (Note 5)
12	BII Storage/Issue	CONC/H	-	Epoxy	CMU	EXP/P
13	Machine Shop	CONC/H (Note 6)	-	N/A	CMU (Note 5)	EXP/P (Note 5)
14	Carpenter Shop	CONC/H (Note 6)	-	N/A	CMU (Note 5)	EXP/P (Note 5)
15	Lumber Storage Shed	CONC/H	-	N/A	CMU/P	EXP/P
16	Canvas Shop	CONC/H (Note 7)	-	N/A	CMU/P	EXP/P
17	Missile Repair Shop	RT	RB	Epoxy	CMU (Note 5)	EXP/P (Note 5)
18	Vault (Missile)	CONC/H	-	N/A	EXP/P	EXP/P
19	Calibration Room	RT	RB	epoxy	CMU (Note 5)	EXP/P (Note 5)
20	Calibration Storage	CONC/H	-	N/A	CMU/P	EXP/P
21	Glass Repair Room	CONC/H	-	N/A	CMU (Note 7)	EXP/P
22	Radiator Test & Repair Room	CONC/H	-	N/A	CMU (Note 7)	EXP/P
23	COMSEC Repair Room	CONC/H	-	N/A	CMU/P	EXP/P (Note 5)
24	Radiation Calibration Room	RT	RB	Epoxy	CMU (Note 5)	EXP/P (Note 5)
25	Bulk POL Storage for Lubricating Systems	CONC/H	-	Epoxy	CMU/P	EXP/P
26	Bulk POL Storage	CONC/H	-	Epoxy	CMU/P	EXP/P
27	Controlled Waste Handling	CONC/H	-	Epoxy	CMU/P	EXP/P
28	Bulk Equipment Storage	CONC/H	-	Epoxy	CMU/P	EXP/P
29	Flammable Materials Storage	CONC/H	-	Epoxy	CMU/P	EXP/P
30	Enclosed Unheated Storage	CONC/H	-	N/A	EXP/P	EXP/P

Table 4. Architectural Interior Finishes (Continued)

	FUNCTIONAL AREA	FLOOR	BASE	WAINSCOT	WALLS	CEILING*
Workbays						
1	General Purpose Workbay	CONC/H	-	Epoxy	CMU (Note 5)	EXP/P (Note 5)
2	Warm-Up Bay	CONC/H	-	Epoxy	CMU (Note 5)	EXP/P (Note 5)
3	Welding Shop	CONC/H	-	Epoxy	CMU (Note 5)	EXP/P (Note 5)
4	Wash Bay	CONC/H	-	Epoxy	CMU (Note 5)	EXP/P (Note 5)
5	Paint Stripping Bay	CONC/H	-	Epoxy	CMU (Note 5)	EXP/P (Note 5)
6	Paint Preparation Bay	CONC/H	-	Epoxy	CMU (Note 5)	EXP/P (Note 5)
7	Paint Booth	CONC/H	-	Epoxy	CMU (Note 5)	EXP/P (Note 5)
8	Lubrication Bay	CONC/H	-	Epoxy	CMU (Note 5)	EXP/P
9	Engine/Transmission Test Cell	CONC/H	-	Epoxy	CMU (Note 5)	EXP/P (Note 5)
10	Electronics Bay	CONC/H	-	Epoxy	CMU	EXP/P
11	Body Shop	CONC/H	-	Epoxy	CMU (Note 5)	CMU (Note 5)

TABLE 4 – ABBREVIATIONS

ACST	acoustical suspended tile, 2 ft by 4 ft or 2 ft by 2 ft
CONC/H	clear liquid hardener/sealer finish over exposed concrete floor
CPT	carpet – A 26- to 28-oz. (face weight), permanent, static-free (2.5 kV or less), cut or loop pile nylon or acrylic commercial-grade (direct glue down without cushion) carpet is authorized. (Carpet-tile is preferred over rolled stock.)
CT	ceramic tile – Thick or thin-set CT and ceramic or marble threshold is authorized
dBA	decibels, A-weighted
dSP	decibels related to sound pressure of 1 Pascal
EXP/P	exposed construction, painted – “Painted” means enamel, latex, or paint of an equivalent cost
GWB/P	gypsum wallboard, painted
RB	resilient base
RT	rubber tile – Static dissipative RT with a static generation of less than 20 volt at 70 °F, 20 percent relative humidity is authorized.
VCT	vinyl composition tile– VCT with a thickness of 3/16 in. or less on monolithic concrete finish and with a final wax coat, if recommended by the tile manufacturer, is authorized.

TABLE 4 – NOTES

1. Rubberized athletic flooring with flexible strength meeting OSHA recommendations of 0.5 Standard coefficient of friction per ASTM D-2047.
2. Urethane-coated floor
3. Epoxy is the base paint. The coating should not exceed a two-application system.
4. Shower walls should be CT full height.
5. Acoustic treatment authorized to keep noise levels in the remainder of the facility below 85 decibels, A-weighted (dBA) and 140 decibels related to sound pressure of 1 Pascal (dSP). Maximum NGB noise curve should be less than 60.
6. Recessed panel floors for access to electrical chases for machines.
7. NGB noise curve is less than 60. Exposed construction painted.
8. Kickboard or carpet up the wall 1'-0" may be provided.

Table 5. Doors, Hardware, Storage, and Shelving

	FUNCTIONAL AREA	DOORS	HARDWARE	STORAGE/SHELVING
Office Areas				
1	General Supervisor	(Note 1)	(Note 2)	(Note 8)
2	Supervisor	(Note 1)	(Note 2)	(Note 8)
3	Production Controller	(Note 1)	(Note 2)	(Note 9)
4	Inspection and Library	(Note 1)	(Note 2)	(Note 9)
5	Automation Clerk	(Note 1)	(Note 2)	(Note 10)
6	Common IT Space	(Note 1)	(Note 2)	(Note 10)
7	IT Support Activities	(Note 1)	(Note 2)	(Note 11)
8	Classroom	(Note 1) w/glass panel or sidelight	(Note 2)	(Note 12)
Personnel Areas				
1	Toilet/Shower	(Note 1)	(Note 2)	(Note 10)
2	Locker Room	(Note 1)	(Note 2)	(Note 19)
3	Break Area	N/A	N/A	supply cabinets
4	Physical Fitness Area	(Note 1) w/glass panel or sidelight	(Note 2)	N/A
Work Areas				
1	Tool Room	(Note 1) (Note 21)	(Note 2)	(Note 7)
2	Supply Room	(Note 1) (Note 21)	(Note 2)	(Note 7)
3	Battery Room	double 3'x7' (One is Dutch door.) (Note 21)	(Note 2)	(Note 21)
4	Comm. & Electronic Shop	(Note 1 & 6)	(Note 2)	(Note 7)
5	Instrument Repair Shop	(Note 1 & 6)	(Note 2)	(Note 7)
6	Small Arms Repair Shop	(Note 1 & 6)		(Note 13)
7	Small Arms Test Room	IAW AR 190-11	IAW AR 190-11	IAW AR 190-11
8	Vault (Small Arms)	IAW AR 190-11	IAW AR 190-11	IAW AR 190-11
9	Vault (CBT) Vehicle Arms	IAW AR 190-11	IAW AR 190-11	IAW AR 190-11

Table 5. Doors, Hardware, Storage, and Shelving (Continued)

	FUNCTIONAL AREA	DOORS	HARDWARE	STORAGE/SHELVING
10	Injector Test Room	double 3'x7' w/removable astragal	(Note 3)	cabinets for storing accessories
11	Fuel and Ignition Repair Shop	double 3'x7' w/removable astragal	(Note 3)	(Note 14)
12	BII Storage/Issue	electronic overhead (12'x12') 3'x7' hollow metal integrated	(Note 3)	(Note 20)
13	Machine Shop	electronic overhead (12'x12') 3'x7' hollow metal integrated	(Note 3)	(Note 15)
14	Carpenter Shop	Electronic Overhead (12'x12')		(Note 15)
15	Lumber Storage Shed	electronic overhead (12'x12') 3'x7' hollow metal integrated	(Note 3)	storage racks for plywood and dimensional lumber
16	Canvas Shop	Electronic overhead (12'x12') 3'x7' hollow metal integrated	(Note 3)	commercial metal shelving
17	Missile Repair Shop	(Note 6) 3'x7' hollow metal integrated	(Note 2)	(Note 7)
18	Vault (Missile)	IAW AR 190-11	IAW AR 190-11	IAW AR 190-11
19	Calibration Room	(Note 6)	(Note 3)	
20	Calibration Storage	(Note 1) (Note 6)	(Note 3)	(Note 13)
21	Glass Repair Room	double 3'x7' w/removable astragal	(Note 3)	shelves for glass storage
22	Radiator Test & Repair Room	electronic overhead (12'x12') 3'x7' hollow metal integrated	(Note 3)	radiator storage rack

Table 5. Doors, Hardware, Storage, and Shelving (Continued)

	FUNCTIONAL AREA	DOORS	HARDWARE	STORAGE/SHELVING
23	COMSEC Repair Room	3'x7' hollow metal integrated (Note 6)	(Note 3)	N/A
24	Radiation Calibration Room	(Note 1) (Note 6)	(Note 3)	(Note 13)
25	Bulk POL Storage for Lubricating Systems	Double 3'x7' w/removable astragal	(Note 3)	(Note 10)
26	Bulk POL Storage	Double 3'x7' w/removable astragal	(Note 3)	(Note 10)
27	Controlled Waste Handling	Double 3'x7' w/removable astragal	(Note 3)	(Note 10)
28	Bulky Equipment Storage	Double 3'x7' w/removable astragal	(Note 3)	(Note 10)
29	Flammable Materials Storage	Double 3'x7' w/removable astragal	(Note 3)	(Note 10)
30	Enclosed Unheated Storage	Double 3'x7' w/removable astragal	(Note 3)	(Note 10)
Workbays				
1	General Purpose Workbay	14'x28' electronic overhead 3'x7' hollow metal integrated (Note 21)	(Note 3)	(Note 16)
2	Warm-Up Bay	14'x28' electronic overhead 3'x7' hollow metal integrated	(Note 3)	(Note 16)
3	Welding Shop	14'x16' electronic overhead 3'x7' hollow metal integrated	(Note 3)	(Note 17)
4	Wash Bay	14'x28' mechanical overhead 3'x7' hollow metal integrated	(Note 3)	N/A

Table 5. Doors, Hardware, Storage, and Shelving (Continued)

	FUNCTIONAL AREA	DOORS	HARDWARE	STORAGE/SHELVING
5	Paint Stripping Bay	14'x16' electric overhead 3'x7' hollow metal integrated	(Note 3)	N/A
6	Paint Preparation Bay	14'x16' electric overhead 3'x7' hollow metal integrated	(Note 3)	Fire-proof cabinet
7	Paint Booth	14'x16' electric overhead 3'x7' hollow metal integrated	(Note 3)	N/A
8	Lubrication Bay	14'x28' electric overhead 3'x7' hollow metal integrated	(Note 3)	N/A
9	Engine/Transmission Test Cell	14'x28' electric overhead 3'x7' hollow metal integrated	(Note 3)	(Note 16)
10	Electronics Bay	14'x28' electric overhead 3'x7' hollow metal integrated	(Note 3)	TBD
11	Body Shop	14'x28' electric overhead 3'x7' hollow metal integrated	(Note 3)	TBD
Building Entries				
1	Main Entrance	(Note 4)	(Note 2)	N/A
2	Personnel Service Entrance Doors	(Note 4)	(Note 2)	N/A

TABLE 5 – ABBREVIATION

N/A not applicable

TABLE 5 – NOTES

- 1 Interior 3'x7' door of 18-gauge hollow metal (flush) with 16-gauge frames and kick plates.
- 2 Commercial-grade electric or key-type door locks.
- 3 Commercial-grade key-type door locks.
- 4 Commercial-grade aluminum glass storefront system.
- 5 Weather-stripped to provide a relatively dust-free environment.
- 6 Shelving, bins, cabinets of an economical and industrial quality, with the storage area not to exceed two times the floor space. Shelving may be movable type (space saver system) with rails mounted to the floor.
- 7 The shelving, cabinets, etc. should be of an economical and executive quality and may be purchased with MCARNG construction funds.
- 8 The shelving, cabinets, etc. should be of an economical and office quality and may be purchased with MCARNG construction funds.
- 9 The shelving, bins, cabinets, etc. should be of an economical and industrial quality and may be purchased with MCARNG construction funds.
- 10 Space saving IT mounts/racks should be suitable for the equipment supported and may be purchased with MCARNG construction funds.
- 11 Enclosed storage for the multimedia systems and training aids/materials. Enclosed office quality shelving, bins, cabinets, etc. should be of an economical and industrial quality and may be purchased with MCARNG construction funds
- 12 Space saving shelving should be used when possible not to exceed two times the floor space.
- 13 Shelving as required for storage of equipment waiting parts and pickup. Cabinets for storage of accessories. Fireproof container.
- 14 Flammable storage container. Cabinets for storage of accessories and shelving not to exceed two times the floor area.
- 15 Two work benches per workbay. The benches may be steel or wood industrial grade and may be purchased with MCARNG construction funds.
- 16 Shelving for pipe and other metal stock.
- 17 Fire-proof cabinet for flammables.

- 18 Lockers, (six foot high lockers are recommended) should be of an economical and industrial quality and may be purchased with MCARNG construction funds. Changing benches are authorized.
- 19 Built-in acid resistant shelving area may be approximately equal to the battery room net floor area. Include an acid resistant built-in workbench with shelves below it.
- 20 May have an 8'x10' overhead door to facilitate forklift operation.
- 21 A personnel door (3'x7') is authorized for every four overhead 14'x28' doors.
- 22 All overhead doors in the exterior walls should be insulated and mechanically operated.

TABLE 5 – SOURCE

IAW AR 190-11, Physical Security of Arms, Ammunition, and Explosives.

Table 6. Mechanical Requirements – Part 1

	FUNCTIONAL AREA	H/O	H/U	C/O	C/U	OA VENTILATION	NCB
Office Areas							
1	General Supervisor	68	55	78	85	10 cfm/person	<43
2	Supervisor	68	55	78	85	10 cfm/person	<43
3	Production Controller	68	55	78	85	10 cfm/person	<43
4	Inspection and Library	68	55	78	85	10 cfm/person	<43
5	Automation Clerk	68	55	78	85	10 cfm/person	<43
6	Common IT Space	68	55	78	85	10 cfm/person	<43
7	IT Support Activities	68	55	78	85	10 cfm/person	<43
8	Classroom	68	55	78	85	10 cfm/person	<35
Personnel Areas							
1	Toilet/Shower	68	55	78	85	50 cfm/WC & UR or 1.0 cfm/ft ²	<43
2	Locker Room	68	55	78	85	0.5 cfm/ft ²	<43
3	Break Area	68	55	78	85	10 cfm/person	<43
4	Physical Fitness Area	68	55	78	85	20 cfm/person	<43
Work Areas							
1	Tool Room	68	55	-	-	3.0 AC/hr	<53
2	Supply Room	68	55	78	85	1.0 AC/hr	<48
3	Battery Room	68	55	78	85	2.0 cfm ft ² w/EA Sys	<53
4	Comm. & Electronic Shop	68	55	78	85	20 cfm/person	<45
5	Instrument Repair Shop	68	55	78	85	20 cfm/person	<45
6	Small Arms Repair Shop	68	55	78	85	20 cfm/person	<45
7	Small Arms Test Room	68	55	78	85	8.0 AC/hr w/EA Sys	<50
8	Vault (Small Arms)	68	-	78	-	0.25 cfm/ft ²	-
9	Vault (CBT Vehicle Arms)	68	-	78	-	0.25 cfm/ft ²	-
10	Injector Test Room	68	55	-	-	6.0 AC/hr w/100% EA	<45
11	Fuel and Ignition Repair Shop	68	55	-	-	8.0 AC/hr w/100% EA	<45
12	BII Storage/Issue	68	55	-	-	3.0 AC/hr	<45

Table 6. Mechanical Requirements – Part 1 (Continued)

	FUNCTIONAL AREA	H/O	H/U	C/O	C/U	OA VENTILATION	NCB
13	Machine Shop	68	55	-	-	8.0 AC/hr w/100% EA per ACGIH Vent. Manual	<45
14	Carpenter Shop	68	55	-	-	8.0 AC/hr w/100% EA per ACGIH Vent. Manual	<45
15	Lumber Storage Shed	N/A	N/A	N/A	N/A		-
16	Canvas Shop	68	55	-	-	6.0 AC/hr w/100% EA	<45
17	Missile Repair Shop	68	55	78	85	3.0 AC/hr w/100% EA	<45
18	Vault (Missile)	68	-	78	-	0.25 cfm/ ft ²	-
19	Calibration Room	68	55	78	85	20 cfm/person	<45
20	Calibration Storage	55	55	78	85	1.0 AC/hr	-
21	Glass Repair Room	68	55	78	85	3.0 AC/hr	<45
22	Radiator Test & Repair Room	68	55	-	-	6.0 AC/hr w/100% EA	<45
23	COMSEC Repair Room	68	55	78	85	20 cfm/person	<45
24	Radiation Calibration Room	68	55	78	85	8.0 AC/hr w/100%EA	<45
25	Bulk POL Storage for Lubricating Systems	55	-	-	-	4.0 AC/hr w/100% EA	-
26	Bulk POL Storage	55	-	-	-	4.0 AC/hr w/100% EA	-
27	Controlled Waste Handling	55	-	-	-	4.0 AC/hr w/100%EA	-
28	Bulky Equipment Storage	55	-	-	-	4.0 AC/hr	-
29	Flammable Materials Storage	55	-	-	-	6.0 AC/hr w/100%EA	-
30	Enclosed Unheated Storage	-	-	-	-	3.0 AC/hr	-
Workbays							
1	General Purpose Workbays	55	55	-	-	1.50 cfm/ ft ²	<45
2	Warm-Up Bay	55	55	-	-	1.50 cfm/ ft ²	<45
3	Welding Shop	68	55	-	-	8.0 AC/hr w/100% EA EXH System Hoods per/ACGIH Vent Manual	<45

Table 6. Mechanical Requirements – Part 1 (Continued)

	FUNCTIONAL AREA	H/O	H/U	C/O	C/U	OA VENTILATION	NCB
4	Wash Bay	55	55	-	-	1.50 cfm/ ft ² , EA	<50
5	Paint Stripping Bay	55	55	-	-	1.50 cfm/ft ² , EA per OSHA, CFR 29 Part 1910	<60
6	Paint Preparation Bay	55	55	-	-	1.50 cfm/ ft ² EA	<50
7	Paint Booth	68	55	-	-	100% EA per ACGIH Vent. Manual	<50
8	Lubrication Bay	55	55	-	-	1.50 cfm/ ft ² , EA	<45
9	Engine/Transmission Test Cell	55	55	-	-	8.0 AC/hr, EA per ACGIH Vent Manual	60
10	Electronics Bay	55	55	-	-	1.50 cfm/ ft ² , EA	<45
11	Body Shop	55	55	-	-	1.50 cfm/ ft ² , EA, per OSHA CFR 29 Part 1910	<50

TABLE 6 – ABBREVIATIONS

AC/hr	air changes per hour
cfm	cubic feet per minute
C/U	cooling/occupied, °F
EA	exhaust air (100%)
fpm	feet per minute
HB	hose bibb
H/O	heating/occupied, °F
H/U	heating/unoccupied, °F
MIN	minimum
NCB	balanced noise criterion
O/A	outside air
RH	relative humidity
UR	urinal

WC water closet

TABLE 6 – NOTES

- 1 Outside Air Ventilation rates are based on ANSI/ASHRAE Standard 62.1-2004 where the supply and return air distribution devices are ceiling mounted. If the distribution devices are located in the occupied zone reduce the air quantity by 50%. Regardless of where the air distribution devices are located the outside air quantity must be at least 15% of the total air circulated HVAC controlled spaces.
2. NCB curves specify noise criteria in various activity areas due to the space itself and all other sources of normal interior and exterior noise due to human occupation. This includes the operation of HVAC systems, the noise produced from equipment and work activities within each area, and noise levels outside the building.
- 3 Exhaust Systems for special work processes that require an exhaust hood to capture particles being transported by the air stream must be designed in accordance with the American Conference of Governmental Industrial Hygienists (ACGIH) Industrial Ventilation Manual and ASHRAE Handbooks of Fundamentals and HVAC Applications.

Table 7. Mechanical Requirements – Part 2

	FUNCTIONAL AREA	PIPED SERVICE	PLUMBING	OTHER
Office Areas				
1	General Supervisor			
2	Supervisor			
3	Production Controller			
4	Inspection and Library			
5	Automation Clerk			
6	Common IT Space			
7	IT Support Activities			
8	Classroom			
Personnel Areas				
1	Toilet/Shower	CW/HW	FD	
2	Locker Room	CW/FD	EDF/FD	
3	Break Area	CW/HW	SK/EDF/FD	
4	Physical Fitness Area	CW/FD	EDF/FD	
Work Areas				
1	Tool Room			
2	Supply Room			
3	Battery Room	CWT/HW	ES/EW	
4	Comm.& Electronic Shop	CA/VAC		
5	Instrument Repair Shop	CA/VAC		
6	Small Arms Repair Shop	CA		
7	Small Arms Test Room			
8	Vault (Small Arms)	FD(ext)		Dehumidifier
9	Vault (CBT Vehicle Arms)	FD(ext)		Dehumidifier
10	Injector Test Room	CA/VAC		
11	Fuel and Ignition Repair Shop	CA/VAC	CWT/EW	
12	Bill Storage/Issue			
13	Machine Shop	CA/VAC	CWT/EW	

Table 7. Mechanical Requirements – Part 2 (Continued)

	FUNCTIONAL AREA	PIPED SERVICE	PLUMBING	OTHER
14	Carpenter Shop	CA/CWT	EW	
15	Lumber Storage Shed			
16	Canvas Shop			
17	Missile Repair Shop	CA/VAC		
18	Vault (Missile)			
19	Calibration Room	CA/VAC		
20	Calibration Storage			
21	Glass Repair Room	CA/CWT	EW	
22	Radiator Test & Repair Room	CA/VAC/C W/HW		
23	COMSEC Repair Room	CA/VAC		
24	Radiation Calibration Room	CA/VAC		
25	Bulk POL Storage for Lubricating Systems	CWT	ES	
26	Bulk POL Storage	CWT	ES	
27	Controlled Waste Handling			
28	Bulky Equipment Storage			
29	Flammable Materials Storage			high/low-exhaust
30	Enclosed Unheated Storage			
Workbays				
1	General Purpose Workbay	CA/VAC/F D	CWT/HW/ES	EW/EDF/SK/TD/OWS
2	Warm-Up Bay	CA	TD/OWS	
3	Welding Shop	CA/CWT	EW	
4	Wash Bay	CW/HW	HB/TD/OWS	
5	Paint Stripping Bay	CA/CWT	EW/ES/	
6	Paint Preparation Bay	CA		
8	Paint Booth	CA/CWT	EW/ES	
8	Lubrication Bay	CA		
9	Engine/Transmission Test Cell	CA/VAC		
10	Electronics Bay	CA/VAC		
11	Body Shop	CA/CWT	ES	

TABLE 7 – ABBREVIATIONS

AC	Air Conditioning
CA	compressed air
CW	cold water
CWT	Cold Water Tempered (EW/ES)

EDF	Electrical Drinking Fountain
ES	emergency shower
EW	Eyewash
FD	Floor Drain
HB	Hose Bibb
HW	hot water
H	heating
OWS	Oily Water Separator
SK	Sink
TD	Trench Drain
VAC	vacuum
V	ventilation

Table 8. Electrical Requirements

	FUNCTIONAL AREA	LIGHTING	FIXTURE TYPE	NOTES
Office Areas				
1	General Supervisor	50 FC	Recessed Fluorescent	1
2	Supervisor	50 FC	Recessed Fluorescent	1
3	Production Controller	50 FC	Recessed Fluorescent	1
4	Inspection and Library	50 FC	Recessed Fluorescent	1,2
5	Automation Clerk	50 FC	Recessed Fluorescent	1,2
6	Common IT Space	50 FC	Recessed Fluorescent	1,2
7	IT Support Activities	50 FC	Recessed Fluorescent	1,2
8	Classroom	70 FC	Recessed Fluorescent	1,2,3
Personnel Areas				
1	Toilet/Shower	30 FC	Recessed Fluorescent	
2	Locker Room	30 FC	Recessed Fluorescent	
3	Break Area	50 FC	Recessed Fluorescent	1,2
4	Physical Fitness Area	40 FC	Pendant Fluorescent	2
Work Areas				
1	Tool Room	30 FC	Pendant Fluorescent	
2	Supply Room	40 FC	Pendant Fluorescent	1,2
3	Battery Room	50 FC	Pend. XP Fluorescent	5
4	Comm. & Electronic Shop	70 FC	Recessed Fluorescent	1,2,3
5	Instrument Repair Shop	70 FC	Recessed Fluorescent	1,2,3
6	Small Arms Repair Shop	70 FC	Pendant Fluorescent	1,2
7	Small Arms Test Room	50 FC	Pendant Fluorescent	2
8	Vault (Small Arms)	40 FC	Pendant Fluorescent	1
9	Vault (CBT Vehicle Arms)	40 FC	Pendant Fluorescent	1
10	Injector Test Room	70 FC	Pend. XP Fluorescent	2,4
11	Fuel and Ignition Repair Shop	70 FC	Pend. XP Fluorescent	2,4
12	BII Storage/Issue	30 FC	Pendant Fluorescent	1,2
13	Machine Shop	70 FC	Pendant Fluorescent	1,2
14	Carpenter Shop	50 FC	Pend. XP Fluorescent	2,4
15	Lumber Storage Shed	20 FC	Pent. XP Fluorescent	4

Table 8. Electrical Requirements (Continued)

	FUNCTIONAL AREA	LIGHTING	FIXTURE TYPE	NOTES
16	Canvas Shop	50 FC	Pendant Fluorescent	2
17	Missile Repair Shop	70 FC	Pendant Fluorescent	1,2
18	Vault (Missile)	40 FC	Pendant Fluorescent	1
19	Calibration Room	70 FC	Pendant Fluorescent	1,2,3
20	Calibration Storage	30 FC	Pendant Fluorescent	
21	Glass Repair Room	50 FC	Pendant Fluorescent	1,2
22	Radiator Test & Repair Room	50 FC	Pendant Fluorescent	1,2
23	COMSEC Repair Room	70 FC	Pendant Fluorescent	1,2,3
24	Radiation Calibration Room	70 FC	Pendant Fluorescent	1,2,3
25	Bulk POL Storage for Lubricating Systems	30 FC	Pend. XP Fluorescent	
26	Bulk POL Storage	30 FC	Pend. XP Fluorescent	
27	Controlled Waste Handling	30 FC	Pend. XP Fluorescent	
28	Bulky Equipment Storage	30 FC	Pendant Fluorescent	
29	Flammable Materials Storage	30 FC	Pend. XP Fluorescent	
30	Enclosed Unheated Storage	30 FC	Pendant Fluorescent	
Workbays				
1	General Purpose Workbay	50 FC	High-Bay Compact Fluor.	1,2
2	Warm-Up Bay	50 FC	High-Bay Compact Fluor.	2
3	Welding Shop	50 FC	High-Bay Compact Fluor.	1,2
4	Wash Bay	50 FC	High-Bay Compact Fluor.	2
5	Paint Stripping Bay	50 FC	High-Bay Compact Fluor	2,4
6	Paint Preparation Bay	50 FC	High-Bay Compact Fluor	2,4
7	Paint Booth	50 FC	Pendant XP Fluorescent	2,4
8	Lubrication Bay	50 FC	High-Bay Compact Fluor.	2
9	Engine/Transmission Test Cell	50 FC	Pendant Fluorescent	1,2
10	Electronics Bay	50 FC	High-Bay Compact Fluor	1,2
11	Body Shop	50 FC	High-Bay Compact Fluor	2

TABLE 8 – NOTES

All Electrical Power System/Service outlets in spaces must be designed and constructed in accordance with NFPA 70, National Electrical Code and actual equipment layout. All Classified areas must be explosion proof construction including lighting and power supply.

Lighting Systems must be designed in accordance with IESNA Lighting Handbook. The Lighting Power Densities in Watts/SF input must be in accordance with ANSI/ASHRAE/IESNA/ Standard 90.1-2004, Energy Standard for Buildings Except Low-Rise Residential Buildings.

- 1 Telephone, data, and power to support mission of the activity should be provided. Reference DG 415-5 Chapter 6 for Telcom/IT specification.
- 2 Power for programmed equipment should be provided.
- 3 Multi-level switching or dimming should be provided.
- 4 Alarm, explosion-proof lighting should be provided.
5. Charging circuits and exhaust fan must operate simultaneously.

Table 9. Special Equipment and Ceiling Heights

	FUNCTIONAL AREA	SPECIAL EQUIPMENT	CEILING* HEIGHT
Office Areas			
1	General Supervisor		8 ft
2	Supervisor		8 ft
3	Production Controller		8 ft
4	Inspection and Library		8 ft
5	Automation Clerk		8 ft
6	Common IT Space		8 ft
7	IT Support Activities		8 ft
8	Classroom		10 ft
Personnel Areas			
1	Toilet/Shower		8 ft
2	Locker Room		8 ft
3	Break Area		8 ft
4	Physical Fitness Area		10 ft
Work Areas			
1	Tool Room		14 ft
2	Supply Room		14 ft
3	Battery Room		10 ft
4	Communications & Electronic Shop		10 ft
5	Instrument Repair Shop		10 ft
6	Small Arms Repair Shop		10 ft
7	Small Arms Test Room		10 ft
8	Vault (Small Arms)	Dehumidifier	10 ft
9	Vault (CBT Vehicle Arms)	Dehumidifier	10 ft
10	Injector Test Room		10 ft
11	Fuel & Injection Repair Shop		10 ft
12	BII Storage/Issue		14 ft
13	Machine Shop		10 ft
14	Carpenter Shop		10 ft
15	Lumber Storage Shed		10 ft
16	Canvas Shop		10 ft
17	Missile Repair Shop		10 ft
18	Vault (Missile)		10 ft

Table 9. Special Equipment and Ceiling Heights (Continued)

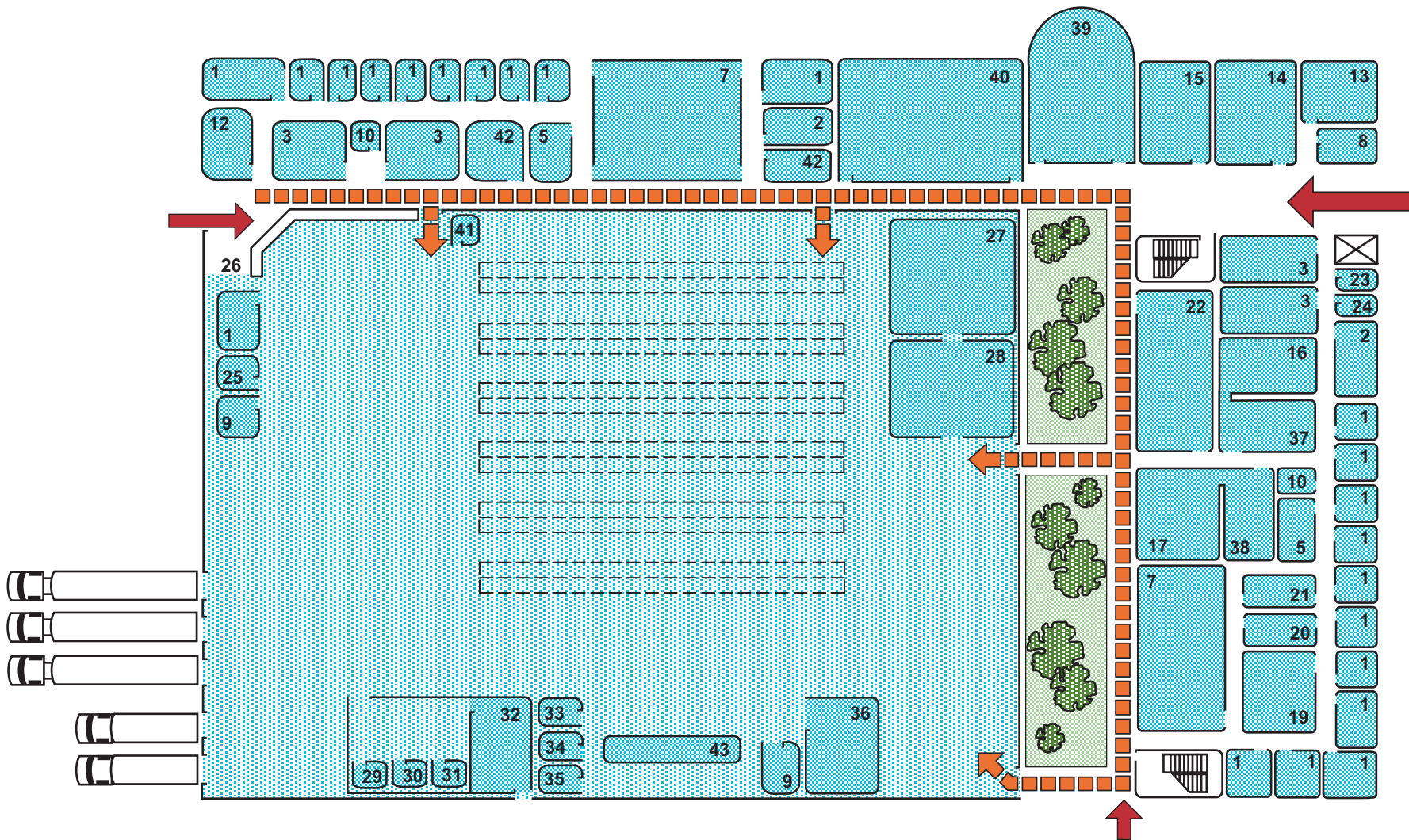
	FUNCTIONAL AREA	SPECIAL EQUIPMENT	CEILING* HEIGHT
19	Calibration Room		10 ft
20	Calibration Storage		10 ft
21	Glass Repair Shop		10 ft
22	Radiator Test & Repair Shop		10 ft
23	COMSEC Repair Room		10 ft
24	Radiation Calibration Room		10 ft
25	Bulk POL Storage for Lubricating Systems		8 ft
26	Bulk POL Storage		10 ft
27	Controlled Waste Handling		10 ft
28	Bulky Equipment Storage		14 ft
29	Flammable Materials Storage		10 ft
30	Enclosed Unheated Storage		14 ft
Workbays			
1	General Purpose Workbay	Up to a potential 15 ton bridge crane with a 17 ft hook height	25 ft
2	Warm-Up Bay	Up to a potential 15 ton bridge crane with a 17 ft hook height	25 ft
3	Welding Shop	Up to a potential 15 ton bridge crane with a 17 ft hook height	25 ft
4	Wash Bay		15 ft
5	Paint Stripping Bay		15 ft
6	Paint Preparation Bay		15 ft
7	Paint Booth		18 ft
8	Lubrication Bay	Up to a potential 15 ton bridge crane with a 17 ft hook height	25 ft
9	Engine/Transmission Test Cell	7-1/2 ton overhead lifting device	15 ft
10	Electronics Bay		15 ft
11	Body Shop		15 ft

***Or clearance to underside of structure.**

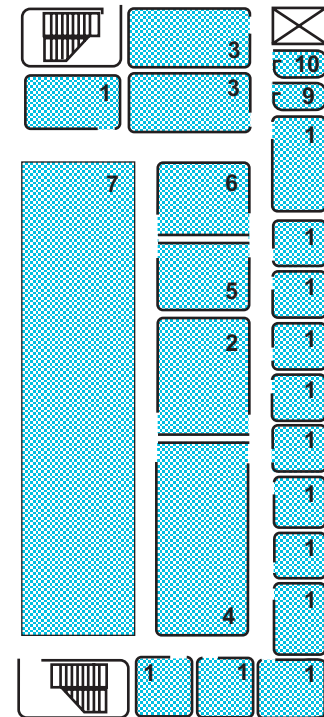
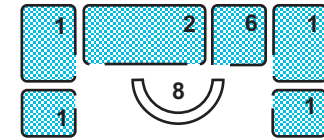
APPENDIX D

FIGURES

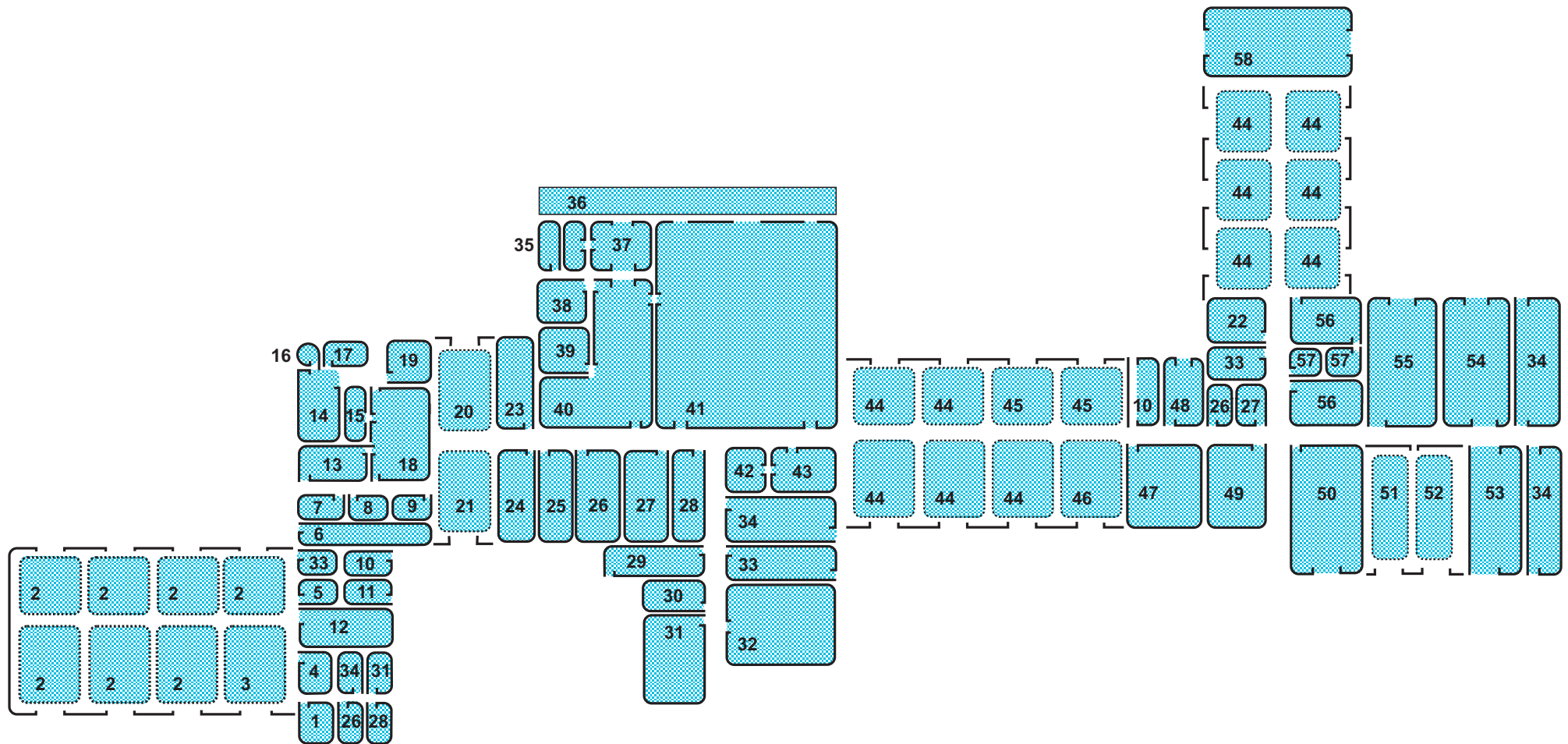
- Figure 1. USPFO Warehouse Facility Functional Relationships – First Level
- Figure 2. USPFO Warehouse Facility Functional Relationships – Second Level
- Figure 3. CSMS/OMS/USPFO Combination Facility



- | | | | | | |
|--------------------|---------------------------|----------------------------|------------------------------------------|-----------------------------|--------------------------|
| 1 Office | 9 Electrical Room | 17 Mens Locker Room | 25 Fire Pump Room | 33 Date / Communications | 41 Scrubber |
| 2 Conference Room | 10 Janitors Closet | 18 Janitor Closet | 26 Warehouse Lobby | 34 Radioactive Materials | 42 Storage |
| 3 Toilet Room | 11 Mechanical Room | 19 Computer Equipment Room | 27 Vault | 35 Fire Suppression | 43 Battery Charging Area |
| 4 File Room | 12 Information Technology | 20 Secure Storage | 28 Vault Work Room | 36 Baler and Paper Shredder | |
| 5 Copy Room | 13 Mail and Supply Room | 21 Computer Repair Room | 29 Oxidizer Waste Storage | 37 Mens Shower / Toilet | |
| 6 Work Room | 14 Computer Training Room | 22 Exercise Room | 30 Flammable Waste Storage | 38 Break Room | |
| 7 Open Office Area | 15 Training Storage | 23 Elevator Machine Room | 31 Water Reactives Waste Storage | 39 Break Room | |
| 8 Reception | 16 Womens Locker Room | 24 Building Storage | 32 Hazardous Waste Materials / Receiving | 40 Training Room | |



- | | | |
|-------------------|--------------------|--------------------|
| 1 Office | 5 Copy Room | 9 Electrical Room |
| 2 Conference Room | 6 Work Room | 10 Janitors Closet |
| 3 Toilet Room | 7 Open Office Area | 11 Mechanical Room |
| 4 File Room | 8 Reception | |



1 Supervisor	11 Flammable Materials Storage	21 Inspection Bay	31 Break Area	41 CSMS Supply	51 Welding Bay
2 OMS Workbay	12 Supply Room	22 Inspection & Library	32 Administration	42 Special Tool Room	52 Body Repair Bay
3 OMS Warm-up Bay	13 Instrument Repair Shop	23 Production Controller	33 Facility Maintenance	43 General Tool Room	53 Paint Booth
4 Tool Room	14 Calibration Room & Tool/Equipment Storage	24 Inspection	34 Mechanical/Electrical Rooms	44 CSMS Workbay	54 Paint Stripping Bay
5 Battery Room	15 COMSEC Repair Room	25 Men's Locker Room	35 USPFO Supervisor	45 CSMS Warm-up Bay	55 Machine Shop
6 Small Arms Test Room	16 Radiation Calibration Room	26 Men's Toilet	36 USPFO Check-in	46 CSMS Lubrication Bay	56 Engine/Transmission Test Cell
7 Small Arms Repair Shop	17 Calibration Storage	27 Women's Toilet	37 USPFO Receiving	47 Fuel & Ignition Repair Shop	57 Engine/Transmission Test Cell Control
8 Vault (Small Arms)	18 Communication/Electronic Room	28 Women's Locker Room	38 USPFO Office	48 Radiator Test & Repair Room	58 Wash Bay
9 Vault (CBT Vehicle Arms)	19 Electronics Storage	29 Physical Fitness Area	39 USPFO Secure Storage	49 Canvas Shop	
10 Bulk POL Storage	20 Electronics Bay	30 Vending	40 USPFO Supply	50 Carpenter/Glass Repair Shop & Lumber Storage	

NOTE: Example illustrates a combination of several logistics functions. The listing does not align exactly with NG PAM 415-12.